

PAST PAPERS

Faculty	Department / Section/Division
Not Applicable	Learning Resource Centre

Past Papers

Faculty of Management, Humanities & social Sciences  
Department of Logistics & Transport

**BMgt. (Hons) in Supply Chain Management  
(Year 1 – Semester II)**

**2019 - 2022**

Document Control & Approving Authority	Senior Director – Quality Management & Administration
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Faculty of Management and Social Sciences  
 Department of Logistics & Transport  
 BMgt Hons in Supply Chain Management  
 Course CODE: COM552  
 Year I Semester II

REPEAT EXAMINATION

Business Mathematics II – BSCM 1211

- This paper consists of SEVEN questions on FIVE (05) pages.
- Answer FOUR questions including question 01.
- Only Non-programmable calculators are allowed.
- You may use appropriate graphs, diagrams, equation/s to prove or justify the answers.
- If you have any doubt as to the interpretation of the wording of a question, make your own decision, but clearly state it on the script.
- Write legibly.

Date: 2022.08.22

Pass mark: 40%

Time: 02 Hours

**Question 01 (Compulsory)**

- (a) There is only 600 milograms of a certain drug that is needed to make both large and small pills for small scale pharmaceutical distribution. The large tablets weigh 40 milograms and the small ones, 30 milograms. Consumer research determines that at least twice the amount of the smaller tablets is needed than the large ones and there needs to be least three large tablets made. Each large tablet is sold for a profit of \$2.5 and the small tablet, \$1.5. Build **Linear Programming Model** to calculate how many tablets of each type have to be prepared to obtain the maximum profit? (Don't Solve this)

(08 Marks)

- (b) State whether following proposition is true or false. Justify your answer.

$$\forall x \in ] - 2, 2[ , 10 - x^3 > 0$$

(06 Marks)

- (c) Determine the definite integral  $\int_{-10}^{10} |x/2| dx$ .

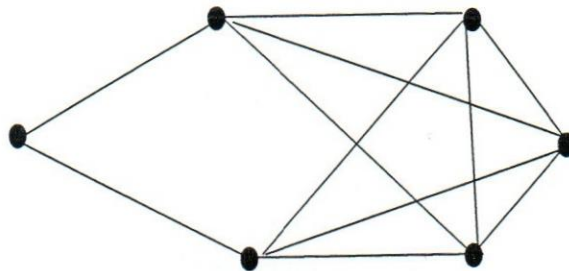




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(06 Marks)

(d) Check the following Graph is Eulerian graph or Not? Justify your answer.



(06 Marks)

(e)  $p, q$  and  $r$  are three propositions. Draw the truth table for followings  
 ( $\neg p$  denotes the negation of proposition 'p')

- (i)  $\neg p \wedge (q \vee r) \rightarrow (p \wedge q) \vee \neg r$   
 (ii)  $(\neg p \wedge \neg q) \rightarrow (\neg p \vee \neg q)$

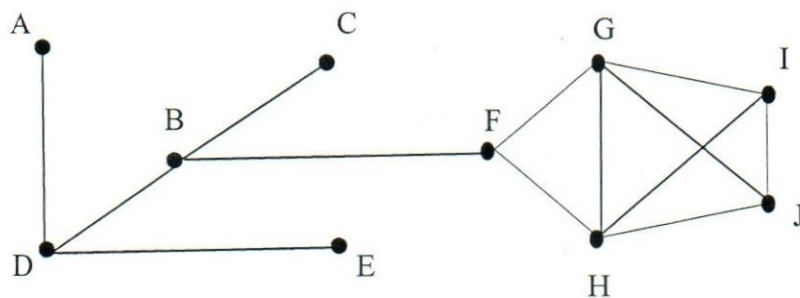
(08 Marks)

(f) Consider the Complete Graph of  $n$  vertices. Prove that Graph contains  $(n-1)(n)/2$  number of edges

(06 Marks)

## Question 02

(a) What is a bridge? Identify the bridges in the following graph.



(05 Marks)





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(b) Draw the following graphs and check the planarity.

(i)  $K_4$

(ii)  $K_{2,4}$

(05 Marks)

(c) Find a 3-regular graph on 14 vertices, such that there is at least one 5-cycle and one 6-cycle (a  $r$ -regular graph is a graph where each vertex has degree  $r$ ).

(10 Marks)

### Question 03

A carpenter makes tables and chairs. Each table can be sold for a profit of Rs. 35 and each chair for a profit of Rs. 15. The carpenter takes 6 hours to make a table and 3 hours to make a chair and spends up to 40 hours per week, working. According to the customer demand, he should make at least three times as many chairs as tables. Tables take up 4 times as much storage space as chairs and there is space for at most 4 tables each week.

(a) Build Linear Programming Model for this problem.

(05 Marks)

(b) Use Graphical method to solve the above Linear Programming model.

(15 Marks)

### Question 04

A farmer has recently acquired 110 hectares of land. He has decided to grow Wheat and Barley on that land. Due to the quality of the sun and the region's excellent climate, the entire production of Wheat and Barley can be sold. He wants to know how to plant each variety in the 110 hectares, given the costs, net profits and labor requirements according to the data shown below:

Variety	Cost (Price/Hec)	Net Profit (Price/Hec)	Man-days/Hec
Wheat	200	80	10





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Barley	300	110	30
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The farmer has a budget of Rs. 10,000 and an availability of 1,500 man-days. Formulate a Linear Programming model for this problem.

(20 Marks)

**Question 05**

(a) Solve the following equations for  $x$  ( $\log_e = \ln$ ).

(i)  $\log_2 [2x / (4x + 5)] = 7$

(ii)  $\frac{-2\ln(x)}{2-\ln(x)} = 4$

(08 Marks)

(b) Calculate the area enclosed by  $y = -2x^2 + 32$  and  $y = 0$

(06 Marks)

(c) If the acceleration of an object at a given time " $t$ " is given by  $a(t) = 2t^3 + 3t^2 + 12$ , calculate the displacement of the particle from  $t = 2$  to  $t = 4$ , given the initial velocity of the particle  $v(0) = 2$ .

(06 Marks)

**Question 06**

(a) Suppose a simple graph has 35 edges, 4 vertices of degree 1, and all others of degree 3. How many vertices does the graph has?

(06 Marks)

(b) State whether following proposition is true or false. Justify your answer.

$$\exists x \in ]-4, 0[ \cap \mathbb{Z}, \text{ such that } x^2(1 - 2x) < 0$$

(08 Marks)

(c) Simplify the following expression.

$$\log(xy)^3 - 3\log(x) - \log(xy^2)$$

(06 Marks)





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### Question 07

- (a) Determine the following indefinite integral. (a is a constant)

$$\int (2e^a + 4 \sin 2a) da$$

(05 Marks)

- (b) Determine the following definite integral.

$$\int_{\frac{\pi}{2}}^{\pi} t \cos t dt$$

(05 Marks)

- (c) Write the following expressions as a single term.

(i)  $\log_2(800) + \log_2\left(\frac{8}{5}\right)$

(ii)  $\frac{e^{(3x+5)}}{e^{-2x}} e^{6x}$

(06 Marks)

- (d) Solve following equations for x in terms of y. (where t is constant)

(i)  $y = 3te^{\sqrt{3x^2-1}}$

(04 Marks)

----- END OF THE QUESTION PAPER -----





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Year I Semester II  
 REPEAT EXAMINATION  
 Business Statistics – BSCM 1308

- This paper consists of EIGHT questions on TEN (10) pages.
- Answer FIVE questions including question 01.
- You may use appropriate graphs, diagrams, equation/s to prove or justify the answers.
- If you have any doubt as to the interpretation of the wording of a question, make your own decision, but clearly state it on the script.
- Write legibly.
- Standard Normal Distribution table is attached.

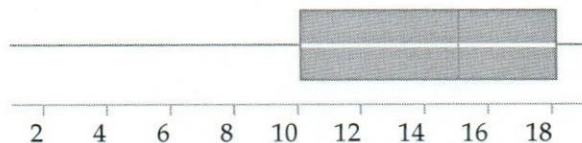
Date: 2022.08.20

Pass mark: 40%

Time: 03 Hours

### Question 01

- (a) Underline the most suitable answer/s  
 1) Consider the boxplot below.



Which of the following statements are true?

- I. The distribution is skewed left.  
 II. The interquartile range is about 8.  
 III. The median is about 10.

- A. I only  
 B. II only  
 C. III only  
 D. I and II  
 E. II and III





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- 2) Which of the following is a discrete random variable?
- I. The average weight of a randomly selected group of boys.
  - II. The number of students registered at CINEC in 2018
  - III. Space available in the Dean's office in square meters
- A. I only
  - B. II only
  - C. III only
  - D. I and II
  - E. II and III
- 3) A simple random sample consists of four observations: {1, 3, 5, 7}. Based on these sample observations, what is the best estimate of the standard deviation of the population?
- A. 2
  - B. 2.58
  - C. 6
  - D. 6.67
  - E. 3
- 4) A population consists of four observations: {1, 3, 5, 7}. What is the variance?
- A. 2
  - B. 4
  - C. 5
  - D. 6
  - E. 3
- 5) If  $E(X) = 2$ , what is the value of  $E(3X + 2)$
- I. 2
  - II. 8
  - III. 6
  - IV. 4
  - V. 5



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- 6) If  $V(X) = 3$ , what is the value of  $V(3X + 2)$ ?
- 11
  - 9
  - 29
  - 27
  - 20
- 7) In quality control of manufactured items, the most common measure of dispersion is
- Quartile Deviation
  - Range
  - Standard Deviation
  - Inter quartile range
  - Variance
- 8) In a Poisson probability distribution
- The mean and standard deviation of the distribution are the same (equal)
  - The mean and variance of the distribution are the same (equal)
  - The probability of success is always greater than 5
  - The number of trials is always less than 5
  - It always contains a contingency table
- 9) If  $X$  and  $Y$  are two events with  $P(X) = a$ ,  $P(Y) = b$  and  $P(X \cap B) = c$ . What is the value of  $P[X' \cap (A \cup B)]$
- $1 - a + b + c$
  - $a - c$
  - $b - c$
  - $1 + a + b - c$
  - $a + b - c$
- 10) Consider the statements given below.
- The arithmetic mean of a frequency distribution is a weighted average, the weight being the frequencies of classes.
  - If a distribution has the longer tail towards left, it is said to be a negatively skewed distribution
  - Measures of kurtosis are not relevant for a skewed distribution.





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Which of the above statement/s is/are correct?

- (A) 1. Only
- (B) 2. Only
- (C) 3. Only
- (D) 1 and 2 only
- (E) All 1., 2. And 3.

(10 Marks)

(b) Identify the variable type of the variables given below

(05 Marks)

Variable Name	Qualitative	Quantitative	
		Discrete	Continuous
1. Gender			
2. No of members in your family			
3. Payment method (Cash/Card/Cheque)			
4. Price of a mobile phone			
5. Number of national schools in western province			
6. Per capita income			
7. Gross monthly salary of a person			
8. Anemic status of a child (Anemic or Non anemic)			
9. Haemoglobin level in blood of a person			
10. Blood sugar level of a person			



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(c) Identify the measurement scale of the variables given below (05 Marks)

Variable Name	Measurement Scale			
	Ordinal	Nominal	Interval	Ratio
1. Gender				
2. No of members in your family				
3. Payment method (Cash/Card/Cheque)				
4. Price of a mobile phone				
5. Number of national schools in western province				
6. Per capita income				
7. Gross monthly salary of a person				
8. Anemic status of a child (Anemic or Non anemic)				
9. Haemoglobin level in blood of a person				
10. Blood sugar level of a person				

### Question 02

A manufacturing company is considering two methods of checking the quality of production of the batches of items it produces.

#### METHOD I:

- A random sample of size 10 is taken from a large batch and the batch is accepted if there are no defectives.
- If there is only 1 defective, then another sample of size 10 is taken and the batch is accepted if there are no defectives in the second sample.
- Otherwise the whole batch is rejected.





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## METHOD II

- A random sample of size 20 is taken from a large batch and the batch is accepted if there is at most ONE defective in the sample.
- Otherwise, the whole batch is rejected.

The factory knows that 1% of items produced are defective and wishes to use the method of checking the quality of production for which the probability of accepting the whole batch is largest.

- (a) Calculate the probability that the batch is accepted according to the METHOD I  
(10 Marks)
- (b) Calculate the probability that the batch is accepted according to the METHOD II  
(10 Marks)

## Question 03

- (a) State whether the following could be modelled by a Poisson distribution or not. Justify your answer.
- (i) The number of misprints on a page in the first draft of a book.
- (ii) Number of bacteria in  $1\text{m}^3$  of water.  
(04 Marks)
- (b) Suppose that faults of in a Cotton Fabric occur at random, with an average of one per 10 square meters. This can be modeled as a Poisson Random variable.
- (i) Identify the parameter/s of Poisson Distribution (02 Marks)
- (ii) Write the Probability density function of the Poisson Distribution  
(02 Marks)
- (iii) What is the probability that 10 square meter fabric will have no faults  
(04 Marks)
- (iv) What is the probability that 10 square meter fabric will have at most 01 faults  
(04 Marks)
- (v) What is the probability that 20 square meter fabric will have at least 2 faults.  
(04 Marks)



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### Question 04

The lifetime of a certain kind of a LED bulb has a normal distribution with mean 500 hours and standard deviation of 50 hours.

Find the probability that,

- The percentage of bulbs with a lifetime of at least 600 hours
- The percentage of bulbs with a lifetime of at most 650 hours
- Find the minimum lifetime of the best 5% of the bulbs
- If the manufacturer of the LED bulbs is willing to claim only 5% warranty claims of his production, calculate the warranty period of the manufacturer.

(5\*4 Marks)

### Question 05

- If  $P(X) = \frac{1}{2}$ ,  $P(X \cup Y) = \frac{3}{4}$  and  $P(Y') = \frac{5}{8}$ 
  - Find  $P(X' \cap Y')$
  - Find  $P(X' \cup Y')$
  - Find  $P(X' \cap Y)$
  - State whether event X and Y are independent

(3\*4 Marks)

- The probability that a doctor will diagnose Covid 19 correctly is 0.8. the probability that a Covid 19 patient will die by his treatment after correct diagnosis is 0.3. The probability that a patient with Covid 19 will die after not diagnosing the disease correctly is 0.7. if a Covid 19 patient died, find the probability that the doctor had diagnose the Covid 19 correctly using Baye's theorem. (05 Marks)

- Four married couples have bought 08 seats in the same row for a cinema. In how many different ways can they be seated; (03 Marks)
  - With no restrictions
  - If each couple is to sit together
  - If all men sit together to the right of all the women





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### Question 06

(a) A quality control inspector tested nine samples of each of three designs A, B and C of certain bearing for a new electrical winch. The following data are the number of hours it took for each bearing to fail when the winch motor was run continuously at maximum output, with a load on the winch equivalent to 1.9 times the intended capacity.

A:	16	16	53	15	31	17	14	30	20
B:	18	27	23	21	22	26	39	17	28
C:	31	16	42	20	18	17	16	15	19

(i) Calculate mean, median, range and standard deviation for each group

(12 Marks)

(ii) Suggest which design is best. Justify your answer

(03 Marks)

(iii) The mean monthly salaries paid to 100 employees of the above company was USD 50,000.

The mean monthly salaries paid to male and female employees were USD 52,000 and USD 42,000 respectively.

Determine the number of males and females employed by the company.

(05 Marks)

### Question 07

(a) Explain with help of examples the difference between Primary and Secondary Data Sources.

(05 Marks)

(b) Charts are more effective in attracting attention than other methods of presenting data. Do you agree or disagree? Give reasons for your answer.

(05 Marks)

(c) Discuss the relationship between Mean, Mode and Median using three distributional shapes.

(05 Marks)

(d) Explain the advantages of Standard Deviation as a measure of variation over range.

(05 Marks)



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### Question 08

(a) If A and B are two events. If  $A \subseteq B$  Prove that  $P(A) \leq P(B)$  (04 Marks)

(b) In an experiment to study the relationship of hypertension and smoking habits, the following data collected for 180 individuals:

	Non Smokers	Moderate Smokers	Heavy Smokers
Hypertension	21	36	30
No hypertension	48	26	19

If one of these individuals is selected at random, find the probability that the person is

(i) experiencing hypertension, given that the person is a heavy smoker. (03 Marks)

(ii) a nonsmoker, given that the person is experiencing hypertension. (03 Marks)

(c) In each of the following situations, explain what graphical display you would use to present the information most appropriately. Do a sketch of the display highlighting the important aspects that should be considered in those graphs.

(i) Student Coordinator of the Faculty of Management at CINEC Campus should present the number of students recruited for the Logistics Degree programme for the period of 2012 to 2022. (02 Marks)

(ii) Student Coordinator of the Faculty of Management at CINEC Campus needs to present, the number of male and female students eligible for the undergraduate programme from each of the streams: Mathematics, Bio-Sciences, Commerce and Arts. (04 Marks)

(iii) Course Coordinator of the Faculty of Management at CINEC Campus needs to compare marks obtained by first year undergraduate students for Mathematics and Business English modules. (04 Marks)

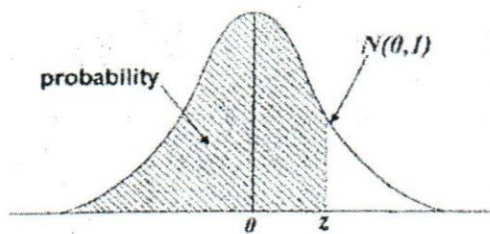
-----END OF THE QUESTION PAPER-----





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### The Standardised Normal Distribution Table



The distribution tabulated is that of the normal distribution with mean zero and standard deviation 1. For each value of  $Z$ , the standardized normal deviate, (the proportion  $P$ , of the distribution less than  $Z$ ) is given. For a normal distribution with mean  $\mu$  and variance  $\sigma^2$  the proportion of the distribution less than some particular value  $X$  is obtained by calculating  $Z = (X - \mu) / \sigma$  and reading the proportion corresponding to this value of  $Z$ .

Z	P	Z	P	Z	P
-4.00	0.00003	-1.00	0.1587	1.05	0.8531
-3.50	0.00023	-0.95	0.1711	1.10	0.8643
-3.00	0.0014	-0.90	0.1841	1.15	0.8749
-2.95	0.0016	-0.85	0.1977	1.20	0.8849
-2.90	0.0019	-0.80	0.2119	1.25	0.8944
-2.85	0.0022	-0.75	0.2266	1.30	0.9032
-2.80	0.0026	-0.70	0.2420	1.35	0.9115
-2.75	0.0030	-0.65	0.2578	1.40	0.9192
-2.70	0.0035	-0.60	0.2743	1.45	0.9265
-2.65	0.0040	-0.55	0.2912	1.50	0.9332
-2.60	0.0047	-0.50	0.3085	1.55	0.9394
-2.55	0.0054	-0.45	0.3264	1.60	0.9452
-2.50	0.0062	-0.40	0.3446	1.65	0.9505
-2.45	0.0071	-0.35	0.3632	1.70	0.9554
-2.40	0.0082	-0.30	0.3821	1.75	0.9599
-2.35	0.0094	-0.25	0.4013	1.80	0.9641
-2.30	0.0107	-0.20	0.4207	1.85	0.9678
-2.25	0.0122	-0.15	0.4404	1.90	0.9713
-2.20	0.0139	-0.10	0.4602	1.95	0.9744
-2.15	0.0158	-0.05	0.4801	2.00	0.9772
-2.10	0.0179	0.00	0.5000	2.05	0.9798
-2.05	0.0202	0.05	0.5199	2.10	0.9821
-2.00	0.0228	0.10	0.5398	2.15	0.9842
-1.95	0.0256	0.15	0.5596	2.20	0.9861
-1.90	0.0287	0.20	0.5793	2.25	0.9878
-1.85	0.0322	0.25	0.5987	2.30	0.9893
-1.80	0.0359	0.30	0.6179	2.35	0.9906
-1.75	0.0401	0.35	0.6368	2.40	0.9918
-1.70	0.0446	0.40	0.6554	2.45	0.9929
-1.65	0.0495	0.45	0.6736	2.50	0.9938
-1.60	0.0548	0.50	0.6915	2.55	0.9946
-1.55	0.0606	0.55	0.7088	2.60	0.9953
-1.50	0.0668	0.60	0.7257	2.65	0.9960
-1.45	0.0735	0.65	0.7422	2.70	0.9965
-1.40	0.0808	0.70	0.7580	2.75	0.9970
-1.35	0.0885	0.75	0.7734	2.80	0.9974
-1.30	0.0968	0.80	0.7881	2.85	0.9978
-1.25	0.1056	0.85	0.8023	2.90	0.9981
-1.20	0.1151	0.90	0.8159	2.95	0.9984
-1.15	0.1251	0.95	0.8289	3.00	0.9986
-1.10	0.1357	1.00	0.8413	3.50	0.99977
-1.05	0.1469			4.00	0.99997

Celmer



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Department of Logistics & Transport  
BMgt Hons in Supply Chain Management  
Course CODE: COM552

Year I Semester II  
REPEAT EXAMINATION  
Business Law – BSCMI309

- This paper consists of EIGHT questions on TWO (02) pages.
- Answer FIVE Questions including Question 01.
- Only non-programmable calculators are allowed.
- You may use appropriate graphs, diagrams, equation/s to prove or justify the answers.
- If you have any doubt as to the interpretation of the wording of a question, make your own decision, but clearly state it on the script.
- Write Legibly.

Date: 2022.08.17

Pass mark: 40%

Time: 03 Hours

**Question 1- (Compulsory)**

Law and morality are two distinct questions, yet many are of the view that, a law which is truly immoral cannot be a real law and that people may have an option of not following such a law.

Appraise the above statement considering natural law and legal positivism. (20 Marks)

**Question 2**

- 1) List out the sources of law in a domestic legal system (5 Marks)
- 2) Briefly explain the concept of *stare decisis* (Precedents) (15 Marks)

**Question 3**

- 1) What is the modern definition of international law? (5 Marks)
- 2) Briefly explain the criteria of Statehood under international law. (15 Marks)

**Question 4**

- 1) What is a contract? (5 Marks)
- 2) What is the difference between an offer and an invitation to treat? (5 Marks)





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- 3) What are the differences in the consequences which may result from a breach of a condition in comparison to a breach of a warranty? (10 Marks)

### Question 5

- 1) What is a Partnership? (5 Marks)  
 2) A partner is both a principle and an agent. How correct is this statement? (10 Marks)  
 3) List out the ways in which a partnership may be dissolved. (5 Marks)

### Question 6

- 1) What is an agency? (5 Marks)  
 2) What are the modes in which an agency relationship may be created? (5 Marks)  
 3) What are the requirements that needs to be established to prove the existence of an agency of necessity? (10 Marks)

### Question 7

A company once duly incorporated has an existence of its own. Discuss this statement considering the Salomon principle. (20 Marks)

### Question 8

Write a brief description about any two of the following. (10\*2 Marks)

- 1) Consideration and *justa causa*.  
 2) Insurable interest.  
 3) Monism and Dualism.  
 4) Concept of subrogation.

-----END OF THE QUESTION PAPER-----





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Year I Semester II  
REPEAT EXAMINATION  
Business Law – BSCMI309

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Date: 2022.08.17

Pass mark: 40%

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### Question 1- (Compulsory)

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 Department of Logistics & Transport  
 BMgt Hons in Supply Chain Management  
 Course CODE: COM552

- 3) What are the differences in the consequences which may result from a breach of a condition in comparison to a breach of a warranty? (10 Marks)

### Question 5

- 1) What is a Partnership? (5 Marks)  
 2) A partner is both a principle and an agent. How correct is this statement? (10 Marks)  
 3) List out the ways in which a partnership may be dissolved. (5 Marks)

### Question 6

- 1) What is an agency? (5 Marks)  
 2) What are the modes in which an agency relationship may be created? (5 Marks)  
 3) What are the requirements that needs to be established to prove the existence of an agency of necessity? (10 Marks)

### Question 7

A company once duly incorporated has an existence of its own. Discuss this statement considering the Salomon principle. (20 Marks)

### Question 8

Write a brief description about any two of the following. (10\*2 Marks)

- 1) Consideration and *justa causa*.  
 2) Insurable interest.  
 3) Monism and Dualism.  
 4) Concept of subrogation.

-----END OF THE QUESTION PAPER-----



Faculty of Management and Social Sciences  
 Department of Logistics & Transport  
 BMgt Hons in Supply Chain Management  
 Course CODE: COM552

Year I Semester II

SEMESTER END EXAMINATION

Financial and Cost Accounting – BSCM1210

- This paper consists of SEVEN questions on SIX (06) pages.
- Answer FOUR questions including question 01.
- Only Non-programmable calculators are allowed.
- You may use appropriate graphs, diagrams, equation/s to prove or justify the answers.
- If you have any doubt as to the interpretation of the wording of a question, make your own decision, but clearly state it on the script.
- Write legibly.

Date: 2022.03.29

Pass mark: 40%

Time: 02 Hours

### Scenario

Chaya (Pvt) Ltd is a leading private limited company in Sri Lanka. Its Trail balance as at 31.03.2021 is given below.

(Whenever required logical assumptions are allowed)

Revenue		50,000,000
Inventory as at 01st April 2020	6,500,000	
Purchases	18,000,000	
Sales returns	3,000,000	
Purchase Returns		2,000,000
Carriage inwards	3,700,000	
Import taxes	3,600,000	
Dividends Income		4,500,000





Faculty of Management and Social Sciences  
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Year I Semester II

SEMESTER END EXAMINATION

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(Whenever required logical assumptions are allowed)

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Inventory as at 01st April 2020	6,500,000	
Purchases	18,000,000	
Sales returns	3,000,000	
Purchase Returns		2,000,000
Carriage inwards	3,700,000	
Import taxes	3,600,000	
Dividends Income		4,500,000

Utilities Rs.300, 000

Courier Charges Rs.200, 000

(3) For 2020/2021 depreciation expenses has not been charged. All fixed assets are depreciated based on the straight-line basis.

Buildings - Cost 10 % per annum.

Motor vehicles- Cost 12% per annum.

Furniture and Fittings- Cost 18% per annum.

(4) Loans and debentures interest not adjusted for the year 2020/2021.

(5) Fixed Deposits interest not adjusted for the year 2020/2021.

(6) Corporate tax rate imposed by Inland Revenue Department (IRD) of Sri Lanka is 25% Per annum. For 2020/2021 year of assessment income tax has not been adjusted.

### Question 01 (Compulsory)

By using the information presented in above scenario candidates are required to

Prepare **Income statement** for the financial year 2020/2021. (25 Marks)

Note: Related working and notes should be shown by the candidates clearly.

### Question 02

By using the information presented in above candidates are required to prepare the

**statement of financial position** as at 31<sup>st</sup> March 2021. (25 Marks)

Note: Related working and notes should be shown by the candidates clearly.

**Question 03**

Define the below terms with examples.

- (a) Cost Center
- (b) Overheads
- (c) Direct Cost
- (d) Fixed Cost
- (e) Variable Cost
- (f) Cost Objects
- (g) Production Overheads
- (h) Administrative Overheads

(25 Marks)

**Question 04**

Identify five different stakeholders who required financial information and explain the types of the financial information they require.

(25 Marks)

**Question 05**

Define the below terms with examples.

- (a) Intangible assets
- (b) Retained profits
- (c) Debentures
- (d) Dividends
- (e) Current Liabilities

(25 Marks)



## Question 06

Use the following information to complete the ratio analysis calculations:

Gerry's Jarmies  
Income Statement for the year ended June 30 2021

	2020	2021
	\$	\$
Sales (all credit)	3 000 000	3 400 000
Less Cost of Sales		
Opening Stock	90 000	110 000
Plus Purchases	1 260 000	1 400 000
	1 350 000	1 510 000
Less Closing Stock	110 000	150 000
Cost of Sales	1 240 000	1 360 000
Gross Profit	1 760 000	2 040 000
Less Operating Expenses		
Selling and Administration Expenses	1 050 000	1 050 000
Net Profit before Interest	710 000	990 000
Interest Paid	(25 000)	(22 000)
Net Profit after Interest	685 000	968 000

Gerrys' Jarmies-

Statement of Financial Position as at June 30 2020 and 2021

	2020	2021		2020	2021
Assets	\$	\$	Liabilities	\$	\$
Current Assets					
Cash at Bank	40 000		Bank Overdraft		80 000
Debtors	100 000	160 000	Creditors	107 000	100 000
Stock	110 000	150 000	Total Current Liabilities	107 000	180 000
Prepaid Insurance		10 000			
Total Current Assets	250 000	320 000	Non-Current Liabilities		

			Mortgage Loan - The XYZ Bank	255 000	140 000
Non-Current Assets			Total Liabilities	362 000	320 000
Equipment	20 000	60 000	Owners Equity		
Buildings	600 000	700 000	Paid-Up capital	1 020 000	1 020 000
Vehicles	120 000	120 000			
Plant	1 000 000	1 000 000	Retained Profits	448 000	860 000
Total NCA	1 740 000	1 880 000	Total O.E.	1 628 000	1 880 000
Total Assets	1 990 000	2 200 000	Totals	1 990 000	2 200 000

### Additional Information

- opening debtors 2020 was \$150 000
- opening total assets 2020 was \$1 500 000

Calculate the following ratios for 2020 and 2021

- current ratio
- quick asset ratio
- return on equity
- net profit margin before tax
- gross profit margin
- stock turnover (times per year)
- stock turnover (in days)
- debtors collection (times per year)
- debtors collection (in days)

(25 marks)

### Question 07

- Explain the difference between the financial accounting and Cost and Management Accounting. (6 marks)
- What is the importance of cost and management accounting discipline for a business. (6 marks)
- How to classify cost in a business? (provide examples) (8 marks)
- Explain the methods business can implement to control cost. (5 marks)

-----END OF THE QUESTION PAPER-----





Faculty of Management and Social Sciences  
Department of Logistics & Transport  
BMgt Hons in Supply Chain Management  
Course CODE: COM552



Year I Semester II

SEMESTER END EXAMINATION

Business Statistics – BSCMI308

- This paper consists of EIGHT questions on TWELVE (12) pages.
- Answer FIVE questions including Question 01.
- Only non-programmable calculators are allowed
- You may use appropriate graphs, diagrams, equation/s to prove or justify the answers.
- If you have any doubt as to the interpretation of the wording of a question, make your own decision, but clearly state it on the script.
- Write legibly.
- Standard Normal Distribution table is attached.

Date: 2022.03.27

Pass mark: 40%

Time: 03 Hours

---

### Question 01 (Compulsory)

- 1) Sampling is simply a process of learning about the ..... on the basis of a sample drawn from it.
  - A. Census
  - B. Population
  - C. Group
  - D. Area
  - E. Research



- 2) The variance of 10 observation is 2. If each observation is increased by 6, variance of the resulting observation is,
- A. 2
  - B. 36
  - C. 4
  - D. 5
  - E. 6

Question no 3, 4, and 5 are based on the 3 data sets A, B and C given below.

Data set A: 2 3 7 1 3 2 3

Data set B: 7 5 9 12 5 3 8

Data set C: 4 4 11 7 2 3 4

- 3) Which one of the following statement/s true?
- A. Mean of data set A = Mode of Data set C
  - B. Mean of data set C = Median of data set B
  - C. Mean of data set B = Median of data set B
  - D. Median of data set B = Mode of data set A
  - E. Mean, median and mode of data set A is equal to 4
- 4) Which one of the following statement/s true?
- A. Mean of Data set A = Mean of Data set B
  - B. Mean of Data set B = Mean of Data set C
  - C. Mean of data set C = Mean of Data set A
  - D. Mean of Data set A = Median of Data set A
  - E. Mean of Data set C = Median of data set C
- 5) Which one of the following statement/s true?
- A. Mean, Median and mode of data set A is equal to 3
  - B. Mean, Median and mode of data set A is equal to 4
  - C. Mean, Median and mode of data set B is equal to 7
  - D. Mean, Median and mode of data set C is equal to 4
  - E. Mean, Median and mode of data set A is not equal

- 6) In a moderately symmetric distribution, what is the relationship between mean, median and mode?
- A. Mode = 2 median - 3 mean
  - B. Mode = 3 median - mean
  - C. Mode = 3 median - 2 mean
  - D. Mode = 3 median + 2 mean
  - E. Mode = 2 median + 3 mean
- 7) If  $E(X) = 2$ , what is the value of  $E(3X + 2)$
- A. 2
  - B. 8
  - C. 6
  - D. 4
  - E. 5
- 8) If  $V(X) = 3$ , what is the value of  $V(3X + 2)$ ?
- A. 11
  - B. 9
  - C. 29
  - D. 27
  - E. 20
- 9) The mean of a distribution is 33, the median is 34, and the mode is 35.5. it is most likely that this distribution is
- A. Positively skewed
  - B. Symmetric
  - C. Negatively skewed
  - D. Asymptotic
  - E. Right skewed
- 10) The sample space for a certain random experiment is  $S = \{a_1, a_2, a_3, a_4\}$
- A.  $P(a_1) = \frac{1}{2}, P(a_2) = \frac{1}{2}, P(a_3) = \frac{1}{4}, p(a_4) = \frac{1}{5}$
  - B.  $P(a_1) = \frac{1}{2}, P(a_2) = 0, P(a_3) = \frac{1}{4}, p(a_4) = \frac{1}{4}$
  - C.  $P(a_1) = \frac{3}{2}, P(a_2) = \frac{1}{2}, P(a_3) = (-\frac{1}{4}), p(a_4) = \frac{1}{5}$
  - D.  $P(a_1) = \frac{1}{2}, P(a_2) = \frac{5}{2}, P(a_3) = \frac{1}{4}, p(a_4) = \frac{1}{5}$
  - E.  $P(a_1) = \frac{1}{2}, P(a_2) = \frac{1}{2}, P(a_3) = \frac{1}{4}, p(a_4) = (-\frac{1}{5})$

Answer Question 11 to 14 using below.

If A and B are two events with  $P(X) = \frac{1}{2}$ ,  $P(Y') = \frac{5}{8}$  and  $P(XUY) = \frac{3}{4}$

11) What is the value of  $P(X \cap Y)$

- A.  $\frac{3}{8}$
- B.  $\frac{5}{8}$
- C.  $\frac{1}{8}$
- D.  $\frac{7}{8}$
- E.  $\frac{1}{4}$

12) What is the value of  $P(X' \cap Y')$

- A.  $\frac{1}{4}$
- B.  $\frac{1}{2}$
- C.  $\frac{2}{3}$
- D.  $\frac{1}{3}$
- E.  $\frac{3}{4}$

13) What is the value of  $P(X' \cup Y')$

- A.  $\frac{3}{8}$
- B.  $\frac{5}{8}$
- C.  $\frac{1}{8}$
- D.  $\frac{7}{8}$
- E.  $\frac{1}{4}$

14) What is the value of Find  $P(X' \cap Y)$

- A.  $\frac{1}{2}$
- B.  $\frac{1}{4}$
- C.  $\frac{3}{4}$
- D.  $\frac{1}{8}$
- E.  $\frac{3}{8}$

15) 'Parameter' refers to the characteristics of the

- A. Population
- B. Sample
- C. Mean
- D. All of the above
- E. None of the above



- 16) The measures used to calculate the variation present among the observations in the unit of the variable is called
- A. Relative measures of dispersion
  - B. Absolute measures of dispersion
  - C. Coefficient of Skewness
  - D. Coefficient of variance
  - E. Kurtosis
- 17) Given below the four sets of observations. Which set has the minimum variation?
- A. 36, 38, 40, 42, 44
  - B. 20, 30, 40, 50, 60
  - C. 30, 40, 50, 60, 70
  - D. 38, 39, 40, 41, 42
  - E. 38, 39, 42, 44, 45
- 18) If the observations of a variable X are, -4, -20, -30, -44 and -36, then the value of the range will be:
- A. 44
  - B. 48
  - C. -40
  - D. 40
  - E. -48
- 19) Half of the difference between upper and lower quartiles is called
- A. Interquartile range
  - B. Variance
  - C. Quartile deviation
  - D. Mean deviation
  - E. Standard deviation

20) S.D(X) = 6 and S.D(Y) = 8. If X and Y are independent random variables, then

S.D(X-Y) is

- A. 2
- B. 4
- C. 10
- D. 14
- E. 100

(20 Marks)

### Question 02

(a) Explain whether or not a Binomial Distribution can be used to model the following situations. In case Binomial Distribution can be used, give a definition of the random variable and suggest suitable values for 'n' and 'p'.

- (i) Number of Boys in a family of 5 children
- (ii) The number of throws in a die until 5 is observed
- (iii) The number of white balls selected when 3 balls are drawn from a bag which consists of 13 white balls and 7 red balls.

(4\*3 Marks)

(b) Paul believes that 40% of people in his town will vote for him in the next provincial council election. He decided to conduct a survey to verify this.

Find the minimum number of people the survey should ask to have a mean number of 100 voting for Paul.

(08 Marks)

### Question 03

The lifetime of an electric component is normally distributed with mean 800 hours and standard deviation of 60 hours.

Find,

- (a) The percentage that the electric component fails before 680 hours
- (b) The percentage of electric component with a lifetime of at most 980 hours
- (c) The percentage of electric component with a lifetime between 680 hours and 920 hours.
- (d) If the standard deviation remains 60 hours what would have been the mean to ensure that not more than 10% of the components before 800 hours

(5\*4Marks)

- a) Calculate the descriptive statistics given below for Warehouse A and Warehouse B.
- i. Range
  - ii. Median
  - iii. Mean
  - iv. First quartile
  - v. Third quartile
  - vi. Standard Deviation (12 Marks)
- b) Write a short description comparing the workloads of Warehouse A and B, by using the descriptive statistics calculated in 'part a)' above. (03 Marks)
- c) Suggest the best possible graph to illustrate these data, indicating the important aspects that should be considered when creating the graph. (Constructing exact measurements given in the table 1 is not required, but a sketch can be drawn.) (05 Marks)

### Question 07

- a) State clearly the mistakes and issues that should be considered in each of the following situations.
- (i) In a market research survey, 85% of the people state that they prefer Product A than Product B. (03 Marks)
  - (ii) Learning methods of undergraduates those who are following BSc ITML were examined by visiting only the University Library. (03 Marks)
  - (iii) ICT (Information Communication Technology) based learning methods used by the DAIs (Degree Awarding Institutes) in Sri Lanka are assessed by considering CINEC Maritime Campus only. (03 Marks)
- b) In each of the following situations, explain what graphical display you would use to present the information most appropriately. Do a sketch of the display highlighting the important aspects that should be considered in those graphs.
- (i) Student Coordinator of the Faculty of Management at CINEC Campus should present the number of students recruited for the Logistics Degree programme for the period of 2012 to 2022. (02 Marks)
  - (ii) Student Coordinator of the Faculty of Management at CINEC Campus needs to present, the number of male and female students eligible for the undergraduate programme from each of the streams: Mathematics, Bio-Sciences, Commerce and Arts. (03 Marks)



- (iii) Course Coordinator of the Faculty of Management at CINEC Campus needs to compare marks obtained by first year undergraduate students for Mathematics and Business English modules. (03 Marks)
- (iv) CINEC Marketing team wants to compare the number of students registered for THREE departments (Department of Logistics, Department of Management and Department of Law) of the Management Faculty by their gender (03 Marks)

### Question 08

- (a) Registrar office of CINEC campus is interested in measuring the Students' satisfaction survey of undergraduates of CINEC. All undergraduates of CINEC will be taken into consideration in conducting this survey.

Research Team wants to check the impact of below factors on the students' satisfaction.

- Academic related activities
- Recreational Activities and Leisure
- Lecture Halls
- Availability of Teaching aids
- Students' welfare activities

- (i) Identify TWO demographic variables needed to be collected from the respondents of the above study. (02 Marks)
- (ii) Write the measurement scale of the above identified variables. (02 Marks)
- (iii) Identify the population of the above study. (02 Marks)
- (iv) Assume that this research proposal is approved by the Board of Directors on 27<sup>th</sup> March 2022, and research team needs to complete the survey and submit Student Satisfaction survey report on or before 31<sup>st</sup> May 2022.

Suggest a suitable data collection method for the above study, justify your answer. (03 Marks)

- (v) Explain TWO challenges that the research team face in data collection process (04 Marks)

**Question 04**

- (a) If  $P(X) = 2/3$ ,  $P(X \cup Y) = 3/4$  and  $P(Y') = 3/8$
- Find  $P(X' \cap Y')$
  - Find  $P(X' \cup Y')$
  - Find  $P(X' \cap Y)$
  - State whether event X and Y are independent (2\*4 Marks)
- (b) Statistics class for first years consists of 5 Marketing graduands and 3 HR graduands. Statistics class for second years consists of 4 Marketing graduands and 5 HR graduands. One graduand needs to be selected from both years to form a committee of 2 graduands for special purpose.  
Find the probability that one of them would be a Marketing graduand and the other person would be a HR graduand. (04 Marks)
- (c) The following table classifies 1000 persons by their sex and by whether or not they favor a certain developmental proposal.

	Male	Female	TOTAL
Favour a proposal	250	450	700
Oppose to proposal	170	130	300
TOTAL	420	580	1000

If a person is selected at random, find the probabilities that,

- The selected person favors the development proposal. (02 Marks)
- The selected person is a male given that the person favors the proposal (03 Marks)
- The selected person opposes the proposal given that the person is a male (03 Marks)

**Question 05**

- (a) State whether the following could be modelled by a Poisson distribution or not. Justify your answer.
- The number of misprints on a page in the first draft of a book.
  - Number of bacteria in  $1\text{m}^3$  of water. (04 Marks)
- (b) The number of accidents per week at a certain road has a Poisson Distribution with parameter 2.5.  
Find the probability that,
- Exactly 5 accidents will occur in a particular week (04 Marks)
  - More than 14 accidents will occur in a 4-week period (05 Marks)



- (c) Chamal is an Inter-university basketball player. He is a 70% free throw shooter. That means his probability of making a free throw is 0.70. Mark is the coach of Chamal, need to calculate the probability that Chamal makes his first free throw on his fifth shot.
- (i) Write the suitable probability distribution to model the above case  
(02 Marks)
- (ii) Write the Probability density function of the above suggested model  
(02 Marks)
- (iii) Calculate the probability that Chamal makes his first free throw on his fifth shot.  
(03 Marks)

### Question 06

In a comparison of the workloads of two warehouses, the number of sales orders received per week recorded over a 15 weeks period and the results are shown in the table given below.

Table 1: Weekly orders received by the Warehouse A and B

<i>Week</i>	<i>Warehouse A</i>	<i>Warehouse B</i>
1	583	455
2	518	508
3	574	498
4	572	519
5	591	568
6	556	571
7	602	591
8	578	603
9	598	621
10	506	605
11	548	592
12	523	634
13	539	629
14	541	635
15	575	589

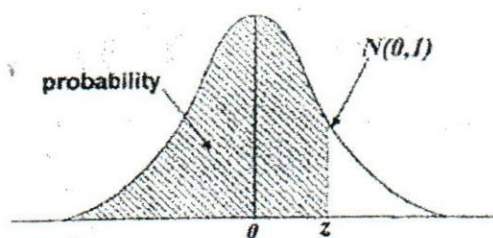


- (b) Identify the variable type (Categorical, Numerical Discrete or Numerical Continuous) and the suitable measurement scale for the following variables  
(07 Marks)

#	Name of the variable	Type of the Variable	Measurement Scale
(i)	Age		
(ii)	Gender		
(iii)	Number of members in the family		
(iv)	Gross monthly income in LKR		
(v)	Ethnicity		
(vi)	Area of the Dean's Office		
(vii)	Living district		

-----END OF THE QUESTION PAPER-----

### The Standardised Normal Distribution Table



The distribution tabulated is that of the normal distribution with mean zero and standard deviation 1. For each value of  $Z$ , the standardized normal deviate, (the proportion  $P$ , of the distribution less than  $Z$ ) is given. For a normal distribution with mean  $\mu$  and variance  $\sigma^2$  the proportion of the distribution less than some particular value  $X$  is obtained by calculating  $Z = (X - \mu) / \sigma$  and reading the proportion corresponding to this value of  $Z$ .

$Z$	$P$	$Z$	$P$	$Z$	$P$
-4.00	0.00003	-1.00	0.1587	1.05	0.8531
-3.50	0.00023	-0.95	0.1711	1.10	0.8643
-3.00	0.0014	-0.90	0.1841	1.15	0.8749
-2.95	0.0016	-0.85	0.1977	1.20	0.8849
-2.90	0.0019	-0.80	0.2119	1.25	0.8944
-2.85	0.0022	-0.75	0.2266	1.30	0.9032
-2.80	0.0026	-0.70	0.2420	1.35	0.9115
-2.75	0.0030	-0.65	0.2578	1.40	0.9192
-2.70	0.0035	-0.60	0.2743	1.45	0.9265
-2.65	0.0040	-0.55	0.2912	1.50	0.9332
-2.60	0.0047	-0.50	0.3085	1.55	0.9394
-2.55	0.0054	-0.45	0.3264	1.60	0.9452
-2.50	0.0062	-0.40	0.3446	1.65	0.9505
-2.45	0.0071	-0.35	0.3632	1.70	0.9554
-2.40	0.0082	-0.30	0.3821	1.75	0.9599
-2.35	0.0094	-0.25	0.4013	1.80	0.9641
-2.30	0.0107	-0.20	0.4207	1.85	0.9678
-2.25	0.0122	-0.15	0.4404	1.90	0.9713
-2.20	0.0139	-0.10	0.4602	1.95	0.9744
-2.15	0.0158	-0.05	0.4801	2.00	0.9772
-2.10	0.0179	0.00	0.5000	2.05	0.9798
-2.05	0.0202	0.05	0.5199	2.10	0.9821
-2.00	0.0228	0.10	0.5398	2.15	0.9842
-1.95	0.0256	0.15	0.5596	2.20	0.9861
-1.90	0.0287	0.20	0.5793	2.25	0.9878
-1.85	0.0322	0.25	0.5987	2.30	0.9893
-1.80	0.0359	0.30	0.6179	2.35	0.9906
-1.75	0.0401	0.35	0.6368	2.40	0.9918
-1.70	0.0446	0.40	0.6554	2.45	0.9929
-1.65	0.0495	0.45	0.6736	2.50	0.9938
-1.60	0.0548	0.50	0.6915	2.55	0.9946
-1.55	0.0606	0.55	0.7088	2.60	0.9953
-1.50	0.0668	0.60	0.7257	2.65	0.9960
-1.45	0.0735	0.65	0.7422	2.70	0.9965
-1.40	0.0808	0.70	0.7580	2.75	0.9970
-1.35	0.0885	0.75	0.7734	2.80	0.9974
-1.30	0.0968	0.80	0.7881	2.85	0.9978
-1.25	0.1056	0.85	0.8023	2.90	0.9981
-1.20	0.1151	0.90	0.8159	2.95	0.9984
-1.15	0.1251	0.95	0.8289	3.00	0.9986
-1.10	0.1357	1.00	0.8413	3.50	0.99977
-1.05	0.1469			4.00	0.99997



Faculty of Management and Social Sciences  
Department of Logistics & Transport  
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Course CODE: COM552



Year I Semester II

SEMESTER END EXAMINATION

Business Statistics – BSCMI308

- This paper consists of EIGHT questions on TWELVE (12) pages.
- Answer FIVE questions including Question 01.
- Only non-programmable calculators are allowed
- You may use appropriate graphs, diagrams, equation/s to prove or justify the answers.
- If you have any doubt as to the interpretation of the wording of a question, make your own decision, but clearly state it on the script.
- Write legibly.
- Standard Normal Distribution table is attached.

Date: 2022.03.27

Pass mark: 40%

Time: 03 Hours

---

### Question 01 (Compulsory)

- 1) Sampling is simply a process of learning about the ..... on the basis of a sample drawn from it.
  - A. Census
  - B. Population
  - C. Group
  - D. Area
  - E. Research



- 2) The variance of 10 observation is 2. If each observation is increased by 6, variance of the resulting observation is,
- A. 2
  - B. 36
  - C. 4
  - D. 5
  - E. 6

Question no 3, 4, and 5 are based on the 3 data sets A, B and C given below.

Data set A: 2 3 7 1 3 2 3

Data set B: 7 5 9 12 5 3 8

Data set C: 4 4 11 7 2 3 4

- 3) Which one of the following statement/s true?
- A. Mean of data set A = Mode of Data set C
  - B. Mean of data set C = Median of data set B
  - C. Mean of data set B = Median of data set B
  - D. Median of data set B = Mode of data set A
  - E. Mean, median and mode of data set A is equal to 4
- 4) Which one of the following statement/s true?
- A. Mean of Data set A = Mean of Data set B
  - B. Mean of Data set B = Mean of Data set C
  - C. Mean of data set C = Mean of Data set A
  - D. Mean of Data set A = Median of Data set A
  - E. Mean of Data set C = Median of data set C
- 5) Which one of the following statement/s true?
- A. Mean, Median and mode of data set A is equal to 3
  - B. Mean, Median and mode of data set A is equal to 4
  - C. Mean, Median and mode of data set B is equal to 7
  - D. Mean, Median and mode of data set C is equal to 4
  - E. Mean, Median and mode of data set A is not equal

- 6) In a moderately symmetric distribution, what is the relationship between mean, median and mode?
- A. Mode = 2 median - 3 mean
  - B. Mode = 3 median - mean
  - C. Mode = 3 median - 2 mean
  - D. Mode = 3 median + 2 mean
  - E. Mode = 2 median + 3 mean
- 7) If  $E(X) = 2$ , what is the value of  $E(3X + 2)$
- A. 2
  - B. 8
  - C. 6
  - D. 4
  - E. 5
- 8) If  $V(X) = 3$ , what is the value of  $V(3X + 2)$ ?
- A. 11
  - B. 9
  - C. 29
  - D. 27
  - E. 20
- 9) The mean of a distribution is 33, the median is 34, and the mode is 35.5. it is most likely that this distribution is
- A. Positively skewed
  - B. Symmetric
  - C. Negatively skewed
  - D. Asymptotic
  - E. Right skewed
- 10) The sample space for a certain random experiment is  $S = \{a_1, a_2, a_3, a_4\}$
- A.  $P(a_1) = \frac{1}{2}, P(a_2) = \frac{1}{2}, P(a_3) = \frac{1}{4}, p(a_4) = \frac{1}{5}$
  - B.  $P(a_1) = \frac{1}{2}, P(a_2) = 0, P(a_3) = \frac{1}{4}, p(a_4) = \frac{1}{4}$
  - C.  $P(a_1) = \frac{3}{2}, P(a_2) = \frac{1}{2}, P(a_3) = (-\frac{1}{4}), p(a_4) = \frac{1}{5}$
  - D.  $P(a_1) = \frac{1}{2}, P(a_2) = \frac{5}{2}, P(a_3) = \frac{1}{4}, p(a_4) = \frac{1}{5}$
  - E.  $P(a_1) = \frac{1}{2}, P(a_2) = \frac{1}{2}, P(a_3) = \frac{1}{4}, p(a_4) = (-\frac{1}{5})$

Answer Question 11 to 14 using below.

If A and B are two events with  $P(X) = \frac{1}{2}$ ,  $P(Y') = \frac{5}{8}$  and  $P(XUY) = \frac{3}{4}$

- 11) What is the value of  $P(X \cap Y)$
- A.  $\frac{3}{8}$
  - B.  $\frac{5}{8}$
  - C.  $\frac{1}{8}$
  - D.  $\frac{7}{8}$
  - E.  $\frac{1}{4}$
- 12) What is the value of  $P(X' \cap Y')$
- A.  $\frac{1}{4}$
  - B.  $\frac{1}{2}$
  - C.  $\frac{2}{3}$
  - D.  $\frac{1}{3}$
  - E.  $\frac{3}{4}$
- 13) What is the value of  $P(X' \cup Y')$
- A.  $\frac{3}{8}$
  - B.  $\frac{5}{8}$
  - C.  $\frac{1}{8}$
  - D.  $\frac{7}{8}$
  - E.  $\frac{1}{4}$
- 14) What is the value of Find  $P(X' \cap Y)$
- A.  $\frac{1}{2}$
  - B.  $\frac{1}{4}$
  - C.  $\frac{3}{4}$
  - D.  $\frac{1}{8}$
  - E.  $\frac{3}{8}$
- 15) 'Parameter' refers to the characteristics of the
- A. Population
  - B. Sample
  - C. Mean
  - D. All of the above
  - E. None of the above



- 16) The measures used to calculate the variation present among the observations in the unit of the variable is called
- A. Relative measures of dispersion
  - B. Absolute measures of dispersion
  - C. Coefficient of Skewness
  - D. Coefficient of variance
  - E. Kurtosis
- 17) Given below the four sets of observations. Which set has the minimum variation?
- A. 36, 38, 40, 42, 44
  - B. 20, 30, 40, 50, 60
  - C. 30, 40, 50, 60, 70
  - D. 38, 39, 40, 41, 42
  - E. 38, 39, 42, 44, 45
- 18) If the observations of a variable X are, -4, -20, -30, -44 and -36, then the value of the range will be:
- A. 44
  - B. 48
  - C. -40
  - D. 40
  - E. -48
- 19) Half of the difference between upper and lower quartiles is called
- A. Interquartile range
  - B. Variance
  - C. Quartile deviation
  - D. Mean deviation
  - E. Standard deviation

20) S.D(X) = 6 and S.D(Y) = 8. If X and Y are independent random variables, then

S.D(X-Y) is

- A. 2
- B. 4
- C. 10
- D. 14
- E. 100

(20 Marks)

### Question 02

(a) Explain whether or not a Binomial Distribution can be used to model the following situations. In case Binomial Distribution can be used, give a definition of the random variable and suggest suitable values for 'n' and 'p'.

- (i) Number of Boys in a family of 5 children
- (ii) The number of throws in a die until 5 is observed
- (iii) The number of white balls selected when 3 balls are drawn from a bag which consists of 13 white balls and 7 red balls.

(4\*3 Marks)

(b) Paul believes that 40% of people in his town will vote for him in the next provincial council election. He decided to conduct a survey to verify this. Find the minimum number of people the survey should ask to have a mean number of 100 voting for Paul.

(08 Marks)

### Question 03

The lifetime of an electric component is normally distributed with mean 800 hours and standard deviation of 60 hours.

Find,

- (a) The percentage that the electric component fails before 680 hours
- (b) The percentage of electric component with a lifetime of at most 980 hours
- (c) The percentage of electric component with a lifetime between 680 hours and 920 hours.
- (d) If the standard deviation remains 60 hours what would have been the mean to ensure that not more than 10% of the components before 800 hours

(5\*4Marks)

**Question 04**

- (a) If  $P(X) = 2/3$ ,  $P(X \cup Y) = 3/4$  and  $P(Y') = 3/8$
- Find  $P(X' \cap Y')$
  - Find  $P(X' \cup Y')$
  - Find  $P(X' \cap Y)$
  - State whether event X and Y are independent (2\*4 Marks)
- (b) Statistics class for first years consists of 5 Marketing graduands and 3 HR graduands. Statistics class for second years consists of 4 Marketing graduands and 5 HR graduands. One graduand needs to be selected from both years to form a committee of 2 graduands for special purpose.  
Find the probability that one of them would be a Marketing graduand and the other person would be a HR graduand. (04 Marks)
- (c) The following table classifies 1000 persons by their sex and by whether or not they favor a certain developmental proposal.

	Male	Female	TOTAL
Favour a proposal	250	450	700
Oppose to proposal	170	130	300
TOTAL	420	580	1000

If a person is selected at random, find the probabilities that,

- The selected person favors the development proposal. (02 Marks)
- The selected person is a male given that the person favors the proposal (03 Marks)
- The selected person opposes the proposal given that the person is a male (03 Marks)

**Question 05**

- (a) State whether the following could be modelled by a Poisson distribution or not. Justify your answer.
- The number of misprints on a page in the first draft of a book.
  - Number of bacteria in  $1\text{m}^3$  of water. (04 Marks)
- (b) The number of accidents per week at a certain road has a Poisson Distribution with parameter 2.5.  
Find the probability that,
- Exactly 5 accidents will occur in a particular week (04 Marks)
  - More than 14 accidents will occur in a 4-week period (05 Marks)



- (c) Chamal is an Inter-university basketball player. He is a 70% free throw shooter. That means his probability of making a free throw is 0.70. Mark is the coach of Chamal, need to calculate the probability that Chamal makes his first free throw on his fifth shot.
- (i) Write the suitable probability distribution to model the above case  
(02 Marks)
- (ii) Write the Probability density function of the above suggested model  
(02 Marks)
- (iii) Calculate the probability that Chamal makes his first free throw on his fifth shot.  
(03 Marks)

### Question 06

In a comparison of the workloads of two warehouses, the number of sales orders received per week recorded over a 15 weeks period and the results are shown in the table given below.

Table 1: Weekly orders received by the Warehouse A and B

<i>Week</i>	<i>Warehouse A</i>	<i>Warehouse B</i>
1	583	455
2	518	508
3	574	498
4	572	519
5	591	568
6	556	571
7	602	591
8	578	603
9	598	621
10	506	605
11	548	592
12	523	634
13	539	629
14	541	635
15	575	589

- a) Calculate the descriptive statistics given below for Warehouse A and Warehouse B.
- i. Range
  - ii. Median
  - iii. Mean
  - iv. First quartile
  - v. Third quartile
  - vi. Standard Deviation (12 Marks)
- b) Write a short description comparing the workloads of Warehouse A and B, by using the descriptive statistics calculated in 'part a)' above. (03 Marks)
- c) Suggest the best possible graph to illustrate these data, indicating the important aspects that should be considered when creating the graph. (Constructing exact measurements given in the table 1 is not required, but a sketch can be drawn.) (05 Marks)

### Question 07

- a) State clearly the mistakes and issues that should be considered in each of the following situations.
- (i) In a market research survey, 85% of the people state that they prefer Product A than Product B. (03 Marks)
  - (ii) Learning methods of undergraduates those who are following BSc ITML were examined by visiting only the University Library. (03 Marks)
  - (iii) ICT (Information Communication Technology) based learning methods used by the DAIs (Degree Awarding Institutes) in Sri Lanka are assessed by considering CINEC Maritime Campus only. (03 Marks)
- b) In each of the following situations, explain what graphical display you would use to present the information most appropriately. Do a sketch of the display highlighting the important aspects that should be considered in those graphs.
- (i) Student Coordinator of the Faculty of Management at CINEC Campus should present the number of students recruited for the Logistics Degree programme for the period of 2012 to 2022. (02 Marks)
  - (ii) Student Coordinator of the Faculty of Management at CINEC Campus needs to present, the number of male and female students eligible for the undergraduate programme from each of the streams: Mathematics, Bio-Sciences, Commerce and Arts. (03 Marks)



- (iii) Course Coordinator of the Faculty of Management at CINEC Campus needs to compare marks obtained by first year undergraduate students for Mathematics and Business English modules. (03 Marks)
- (iv) CINEC Marketing team wants to compare the number of students registered for THREE departments (Department of Logistics, Department of Management and Department of Law) of the Management Faculty by their gender (03 Marks)

### Question 08

- (a) Registrar office of CINEC campus is interested in measuring the Students' satisfaction survey of undergraduates of CINEC. All undergraduates of CINEC will be taken into consideration in conducting this survey.

Research Team wants to check the impact of below factors on the students' satisfaction.

- Academic related activities
- Recreational Activities and Leisure
- Lecture Halls
- Availability of Teaching aids
- Students' welfare activities

- (i) Identify TWO demographic variables needed to be collected from the respondents of the above study. (02 Marks)
- (ii) Write the measurement scale of the above identified variables. (02 Marks)
- (iii) Identify the population of the above study. (02 Marks)
- (iv) Assume that this research proposal is approved by the Board of Directors on 27<sup>th</sup> March 2022, and research team needs to complete the survey and submit Student Satisfaction survey report on or before 31<sup>st</sup> May 2022.

Suggest a suitable data collection method for the above study, justify your answer. (03 Marks)

- (v) Explain TWO challenges that the research team face in data collection process (04 Marks)

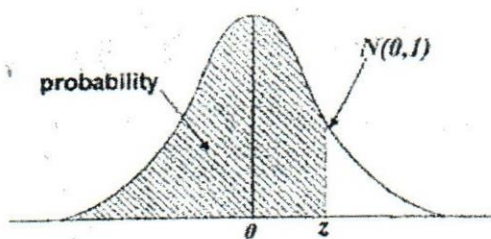


- (b) Identify the variable type (Categorical, Numerical Discrete or Numerical Continuous) and the suitable measurement scale for the following variables  
(07 Marks)

#	Name of the variable	Type of the Variable	Measurement Scale
(i)	Age		
(ii)	Gender		
(iii)	Number of members in the family		
(iv)	Gross monthly income in LKR		
(v)	Ethnicity		
(vi)	Area of the Dean's Office		
(vii)	Living district		

-----END OF THE QUESTION PAPER-----

### The Standardised Normal Distribution Table



The distribution tabulated is that of the normal distribution with mean zero and standard deviation 1. For each value of  $Z$ , the standardized normal deviate, (the proportion  $P$ , of the distribution less than  $Z$ ) is given. For a normal distribution with mean  $\mu$  and variance  $\sigma^2$  the proportion of the distribution less than some particular value  $X$  is obtained by calculating  $Z = (X - \mu) / \sigma$  and reading the proportion corresponding to this value of  $Z$ .

$Z$	$P$	$Z$	$P$	$Z$	$P$
-4.00	0.00003	-1.00	0.1587	1.05	0.8531
-3.50	0.00023	-0.95	0.1711	1.10	0.8643
-3.00	0.0014	-0.90	0.1841	1.15	0.8749
-2.95	0.0016	-0.85	0.1977	1.20	0.8849
-2.90	0.0019	-0.80	0.2119	1.25	0.8944
-2.85	0.0022	-0.75	0.2266	1.30	0.9032
-2.80	0.0026	-0.70	0.2420	1.35	0.9115
-2.75	0.0030	-0.65	0.2578	1.40	0.9192
-2.70	0.0035	-0.60	0.2743	1.45	0.9265
-2.65	0.0040	-0.55	0.2912	1.50	0.9332
-2.60	0.0047	-0.50	0.3085	1.55	0.9394
-2.55	0.0054	-0.45	0.3264	1.60	0.9452
-2.50	0.0062	-0.40	0.3446	1.65	0.9505
-2.45	0.0071	-0.35	0.3632	1.70	0.9554
-2.40	0.0082	-0.30	0.3821	1.75	0.9599
-2.35	0.0094	-0.25	0.4013	1.80	0.9641
-2.30	0.0107	-0.20	0.4207	1.85	0.9678
-2.25	0.0122	-0.15	0.4404	1.90	0.9713
-2.20	0.0139	-0.10	0.4602	1.95	0.9744
-2.15	0.0158	-0.05	0.4801	2.00	0.9772
-2.10	0.0179	0.00	0.5000	2.05	0.9798
-2.05	0.0202	0.05	0.5199	2.10	0.9821
-2.00	0.0228	0.10	0.5398	2.15	0.9842
-1.95	0.0256	0.15	0.5596	2.20	0.9861
-1.90	0.0287	0.20	0.5793	2.25	0.9878
-1.85	0.0322	0.25	0.5987	2.30	0.9893
-1.80	0.0359	0.30	0.6179	2.35	0.9906
-1.75	0.0401	0.35	0.6368	2.40	0.9918
-1.70	0.0446	0.40	0.6554	2.45	0.9929
-1.65	0.0495	0.45	0.6736	2.50	0.9938
-1.60	0.0548	0.50	0.6915	2.55	0.9946
-1.55	0.0606	0.55	0.7088	2.60	0.9953
-1.50	0.0668	0.60	0.7257	2.65	0.9960
-1.45	0.0735	0.65	0.7422	2.70	0.9965
-1.40	0.0808	0.70	0.7580	2.75	0.9970
-1.35	0.0885	0.75	0.7734	2.80	0.9974
-1.30	0.0968	0.80	0.7881	2.85	0.9978
-1.25	0.1056	0.85	0.8023	2.90	0.9981
-1.20	0.1151	0.90	0.8159	2.95	0.9984
-1.15	0.1251	0.95	0.8289	3.00	0.9986
-1.10	0.1357	1.00	0.8413	3.50	0.99977
-1.05	0.1469			4.00	0.99997



Faculty of Management and Social Sciences  
Department of Logistics & Transport  
BMgt Hons in Supply Chain Management  
Course CODE: COM552

Year 1 Semester II

SEMESTER END EXAMINATION

Business Mathematics II – BSCM 1211

- This paper consists of SEVEN questions on FIVE (05) pages.
- Answer FOUR questions including Question 01.
- Only Non-programmable calculators are allowed.
- You may use appropriate graphs, diagrams, equation/s to prove or justify the answers.
- If you have any doubt as to the interpretation of the wording of a question, make your own decision, but clearly state it on the script.
- Write legibly.

Date: 2022.03.25

Pass mark: 40%

Time: 02 Hours

### Question 01 (Compulsory)

- (a) Transport company has two types of trucks, Type A and Type B. Type A has a refrigerated capacity of  $30 \text{ m}^3$  and a non-refrigerated capacity of  $40 \text{ m}^3$  while Type B has the same overall volume with equal sections for refrigerated and non-refrigerated stock. A grocer needs to hire trucks for the transport of  $3,500 \text{ m}^3$  of refrigerated stock and  $4,500 \text{ m}^3$  of non-refrigerated stock. The cost per kilometer of a Type A is USD 40 and USD 50 for Type B.
- Build Linear Programming Model to calculate how many trucks of each type should the grocer rent to achieve the minimum total cost?
  - Use Graphical method to solve the above linear Programming model.  
(12 Marks)
- (b) State whether following proposition is true or false. Justify your answer.

$$\forall x \in ] - 4, 4[ , 70 - x^3 > 0$$

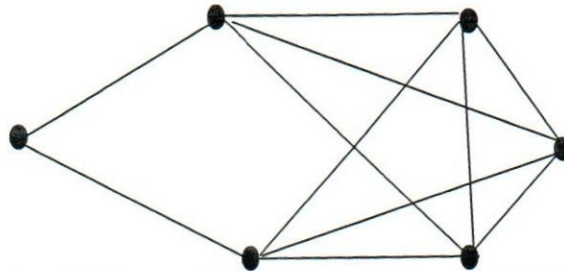
(06 Marks)



(c) Determine the definite integral  $\int_{-10}^5 |2x| dx$ .

(04 Marks)

(d) Check the following Graph is Hamiltonian graph or Not? Justify your answer.



(04 Marks)

(e) p, q and r are three propositions. Draw the truth table for followings  
( $\neg p$  denotes the negation of proposition 'p')

- (i)  $\neg p \wedge (\neg q \vee r) \rightarrow (p \wedge q) \vee \neg r$   
 (ii)  $(\neg p \wedge \neg q) \rightarrow (\neg p \vee \neg q)$

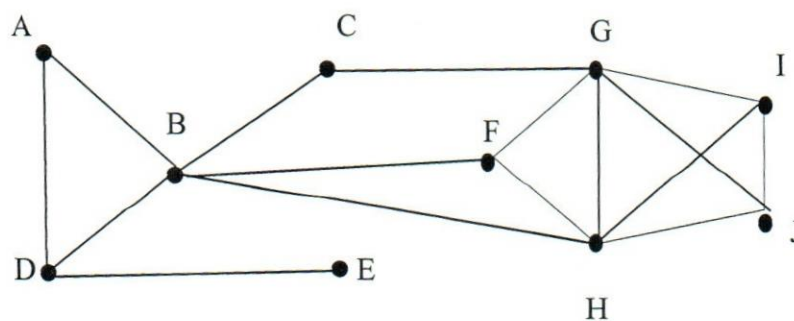
(08 Marks)

(f) Suppose a simple graph has 16 edges, 3 vertices of degree 4, and all Others of degree 2. How many vertices does the graph has?

(06 Marks)

### Question 02

(a) What is a bridge of the Graph ? Identify the bridges in the following graph.



(08 Marks)

(b) Draw the following graphs and check the planarity.

(i)  $K_5$

(ii)  $K_{2,6}$

(06 Marks)

(c) Find a 3-regular graph on 14 vertices, such that there is at least one 6-cycle.

(06 Marks)

### Question 03

A carpenter makes tables and chairs. Each table can be sold for a profit of Rs. 25 and each chair for a profit of Rs. 15. The carpenter takes 6 hours to make a table and 3 hours to make a chair and spends up to 40 hours per week, working. According to the customer demand, he should make at least three times as many chairs as tables. Tables take up 4 times as much storage space as chairs and there is space for at most 4 tables each week.

(a) Build Linear Programming Model for this problem.

(20 Marks)

### Question 04

There are six cities in Himalaya Pradesh. The Mayor of Himalaya Pradesh want to determine where to build fire stations. She wants to build the minimum number of fire stations needed to ensure that at least one fire station is within 15 minutes (driving time) of each city. The time (in minutes) required to drive between the cities in Himalaya Pradesh are shown in following Table.

From	To					
	City 1	City 2	City 3	City 4	City 5	City 6
City 1	0	10	20	30	30	20
City 2	10	0	25	35	20	10
City 3	20	25	0	15	30	20
City 4	30	35	15	0	15	25
City 5	30	20	30	15	0	14
City 6	20	10	20	25	14	0

Formulate LP Model that will tell the Mayor, how many Fire stations should be built and where they should be located. (Don't solve this)

(20 Marks)

**Question 05**

(a) Solve the following equations for  $x$  ( $\log_e = \ln$ ).

(i)  $\log_2 [2x / (3x + 5)] = 4$

(ii)  $\frac{-2\ln(3x)}{2-\ln(3x)} = 4$  (08 Marks)

(b) Calculate the area enclosed by  $y = -x^2 + 16$  and  $y = 0$

(06 Marks)

(c) If the acceleration of an object at a given time " $t$ " is given by  $a(t) = t^3 + t^2 + 5$ , calculate the displacement of the particle from  $t = 2$  to  $t = 4$ , given the initial velocity of the particle  $v(0) = 2$ .

(06 Marks)

**Question 06**

(a) Suppose a simple graph has 35 edges, 4 vertices of degree 1, and all others of degree 3. How many vertices does the graph has?

(06 Marks)

(b) State whether following proposition is true or false. Justify your answer.

$$\exists x \in ]-5, 0[ \cap \mathbb{Z}, \text{ such that } 4x^2(1 - 3x) < 0$$

(08 Marks)

(c) Simplify the following expression.

$$\log(xy)^4 - 3\log(x) - \log(xy^3)$$

(06 Marks)



**Question 07**

- (a) Determine the following indefinite integral. (a is a constant)

$$\int (3e^{2a} + 5 \sin 3a) da$$

(05 Marks)

- (b) Determine the following definite integral.

$$\int_{\frac{\pi}{2}}^{\pi} 3t \sin t dt$$

(05 Marks)

- (c) Write the following expressions as a single term.

(i)  $\log_2(800) + \log_2\left(\frac{80}{5}\right)$

(ii)  $\frac{e^{(4x+5)}}{e^{-3x}} e^{7x}$

(06 Marks)

- (d) Solve following equations for x in terms of y. (Where 't' is constant)

(i)  $y = 3te^{\sqrt{6x^2-5}}$

(04 Marks)

----- **END OF THE QUESTION PAPER** -----



Faculty of Management and Social Sciences  
Department of Logistics & Transport  
BMgt Hons in Supply Chain Management  
Course CODE: COM552



Year I Semester II

SEMESTER END EXAMINATION

English for Business II – BSCM 1212

- This paper consists of FIVE questions on TWELVE (12) pages.
- Answer ALL questions.
- Only non-programmable calculators are allowed
- You may use appropriate graphs, diagrams, equation/s to prove or justify the answers.
- If you have any doubt as to the interpretation of the wording of a question, make your own decision, but clearly state it on the script.
- Write legibly.

Date: 2022.03.20

Pass mark: 40%

Time:02 Hours

**Section A – Business Vocabulary/ Structures**

**Question 1**

**A. Underline the most appropriate word given within brackets. (10 Marks)**

- (i). Resounding success is an English collocation. Advanced students need to be (sensible/ aware/ proficient) of the importance of collocation.
- (ii). Much of manager's success lies in his skill in (handling/imposing/ dominating) staff.
- (iii). Rayan is in charge of an (initiative/ industry/ enterprise) with a turnover of 26 billion dollars.
- (iv). Constant product (portfolio/ innovation/ adaptation) is a criterion for most industries.
- (v). (Resourcing/ Variability/ Creativity) and originality are more important than technical skill.
- (vi). The manager seemed incapable of making a (wise/ witty/ rational) decision.



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Course CODE: COM552

(vii). The argument over decentralization will (routinely/ gradually/ probably) continue forever.

(viii). At the bottom of the corporate (hierarchy/ organization/ management) are part-time low-paid workers.

(ix). Clients risk (borrowing/ lending/ incurring) bank charges if they exceed their overdraft limit.

(x). The company maintains (liability/ property/ assets) insurance for its directors and officers.

**B. Put the words in the following sentences in the correct order. (10 Marks)**

(i). effectively/ reduce/ the/ must/ costs/ to/ company/ compete  
.....  
.....  
.....

(ii). programme/ a/ the/ initiated/ reform/ government/ has/ economic/ of  
.....  
.....  
.....

(iii). call centres/ unemployment/ low-paid jobs/ solved/ not/ in/ will/ offering/ by/ be  
.....  
.....  
.....

(iv). received/ the/ the/ a number of/ manager/ customers/ about/ complaints/ of/ from/ parking/ lack  
.....  
.....  
.....

(v). taxation/ government/ an/ and/ the/ of/ to/ needs/ equitable/ construct/ method/ efficient/





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**Section B - English in Pragmatic/ Realistic Settings**

**Question 2**

**A. Identify the errors in the following sentences and rewrite correcting them.**

**(10 Marks)**

**Example:** He asked from the manager. He asked the manger.

- (i). They went to home. ....
- (ii)They go to a trip every year. ....
- (iii). You know me, no? .....
- (iv). I and She are friends. ....
- (v). She never blame herself. ....
- (vi). He is neither here or there. ....
- (vii). Some students work hardly. ....
- (viii). He came quickly here. ....
- (ix). I am late, amn't I? .....
- (x). There is lack of clearness in the law.....

**B. Write the functions of the following expressions used in everyday language**

**choosing from the box.**

**(10 Marks)**

~~request~~, necessity, obligation, permission, suggestion, ability, prohibition, no  
necessity, criticism, assumption, probability

**Example:** Will you be my business consultant from next month? (*request*)



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- (i). A great leader can resuscitate the economy. ....
- (ii). You shouldn't have neglected your duties. ....
- (iii). Managers have to follow stipulated policies. ....
- (iv). The company might face liquidity issues. ....
- (v). People must not invest in illegal business. ....
- (vi). Shall we introduce a marketing campaign? .....
- (vii). The racketeer must have left the country. ....
- (viii). The importer didn't have to go through customs. ....
- (ix). The employees can work from home for two weeks. ....
- (x). The equipment must be insured. ....

### Section C - Comprehension

#### Question 3

- I. **Read the following passage and write whether the given statements are true, false or not given. (05 Marks)**

The Stock Market (Stock Exchange) is a place where securities such as shares and debentures issued by companies are traded. The Colombo Stock Exchange (CSE) is the organization responsible for the operation of the stock market in Sri Lanka. The CSE is licensed by the Securities and Exchange Commission of Sri Lanka (SEC) to operate as a stock market in Sri Lanka. The SEC regulates and oversees the stock market. Companies are admitted to the official list of the CSE as listed companies. On April 21, 2015 there were 297 companies listed in the stock market. The public who wish to buy or sell securities in the stock market must register with one or more of the fifteen licensed stockbroker firms of the CSE who attend to the transactions.

- (a) The CSE has authorized SEC to operate as a stock market in Sri Lanka.  
 .....





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- (b) The SEC is licensed by the Central Bank of Sri Lanka. ....
- (c) The activities of CSE are supervised by the SEC. ....
- (d) There are 15 licensed stockbroker companies working for the CSE.  
 .....
- (e) Most stockbroker companies offer trading through the internet. ....

**II. Read the following description and underline the two correct statements.  
 (05 Marks)**

This is an opinion piece on the subject of whether or not theoretical and conceptual frameworks are conceptual synonyms, or they refer to different constructs. Although, generally, a lot of literature uses these two terms interchangeably - suggesting they are conceptually equivalent, the researcher argues that these are two different constructs - both by definition and as actualized during research process. Thus, in this paper, the researcher starts by developing his argument by examining the role of theory in research, and then draws a distinction between areas of research that typically follow deductive versus inductive approaches., with regard to both the review of literature and data collection. The researcher then subsequently, argues that whereas a deductive approach to literature review typically makes use of theories and theoretical frameworks, the inductive approach tends to lead to the development of a conceptual framework - which may take the form of a conceptual model.

- (a) The researcher's view is that theoretical and conceptual frameworks refer to same concept.
- (b) Both by definition and making a reality in research method, conceptual and theoretical frameworks are different according to the author.
- (c) The researcher shows the differences in the research areas that use deductive and inductive approaches.





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(d) The author explains that inductive approach uses theoretical framework while deductive approach uses conceptual model.

III. Read the article below about the successful delegation of work. Underline the best word or phrase to fill each gap from (a), (b) or (c). (10 Marks)

### Team Building Through Activities

Nowadays company bosses are increasingly trying to find unusual team building events as part of their training programs. An activity park e.g. called Fast-Track has just opened to offer (1)..... events. It specializes (2)..... events to attract the corporate entertainment market, (3)..... is growing all the time. The park is situated just a few kilometers outside the city center (4)..... it provides events that (5)..... entertain as well as train. Clients can try outdoor attractions such as sailing or climbing (6)..... availability clearly depends on entirely (7)..... the weather. Activities of (8)..... kind are perfect team-building exercises. "I had (9)..... been to an activity park before," explained James Black, a company manager. "Before we came, I didn't think we would enjoy ourselves so much and I didn't expect the huge differences that Fast Track's program has (10)..... to my team. Now we work better together than we did before.

- | <u>e.g.</u> | (a). calling | (b). calls    | (c). called |
|-------------|--------------|---------------|-------------|
| 1.          | (a). like    | (b). such     | (c). so     |
| 2.          | (a). at      | (b). for      | (c). in     |
| 3.          | (a). who     | (b). which    | (c). what   |
| 4.          | (a). and     | (b). but      | (c). or     |
| 5.          | (a). ought   | (b). will     | (c). shall  |
| 6.          | (a). because | (b). although | (c). since  |
| 7.          | (a). on      | (b). of       | (c). with   |
| 8.          | (a). a       | (b). these    | (c). this   |
| 9.          | (a). still   | (b). ever     | (c). never  |
| 10.         | (a). made    | (b). had      | (c). done   |



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### Section D - Presenting Information

#### Question 4

A. Study the following table and fill in the blanks with the most appropriate word choosing from the table. (10 Marks)

<i>Unrenewable and renewable sources</i>	The Percentages of Energy Consumption			
	UK 2015	USA 2015	UK 2020	USA 2020
Oil	28%	37%	30%	40%
Coal	30%	35%	12%	20%
Gas	20%	16%	38%	25%
Nuclear Power	15%	8%	9%	6%
Other Renewable sources	7 %	4%	11%	9%

The given table shows energy sources in the UK and the USA in 2015 and 2020. In both years *e.g. unrenewable* sources provide the vast majority of energy in both countries.

The UK and USA derive their energy from different (i)..... The UK is much dependent on gas (ii)..... the USA uses mainly oil. Both countries are, however, dependent on (iii)..... and this has become more so over the (iv)..... year period with figures in the UK rising from 28% to (v)..... and in the USA from (vi)..... to 40%. The UK has significantly reduced its dependence on (vii)....., it contributing only 12% in 2020, and increasingly used natural gas. The USA follows a similar pattern but not to the same degree.

Both countries have increased their usage of (viii)..... sources but the overall percentage is quite minimal. Both countries have also reduced their dependence on (ix)....., dropping from 15% to 9% in the UK and from (x)..... to 6% in the USA.

B. Summarize the information given in the table by selecting and reporting the main features and make comparisons where relevant. (10 Marks)

The table gives information on the bulk of imports and exports of Country X in billion rupees. Use the format introduction-body-conclusion.









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### Section E - Business Writing

#### Question 5

A. In the following report, five phrases or sentences are missing. Write the number of the missing phrases or clauses given separately in the blanks where they should fit in. (10 Marks)

#### The advantages, disadvantages and challenges of WFH

Working From Home provides many benefits to employees as well as to employers. From the employees' point of view, reduced commuting time and related expenses, greater flexibility in terms of location and working time, fewer distractions and ... *e.g. (iv)*... Reduced operational expenses related to utility costs and workspace, and staff expenses related to overtime and transport allowances, improved productivity, engagement and reduced turnover are the key benefits of such arrangements from the employers' point of view. In addition, WFH has been continuously highlighted as a measure to improve female labor participation in Sri Lanka, (a)..... WFH is a mechanism to augment resource availability in the country, thereby promoting the economic growth in the long run. (b)..... through reduced carbon emissions, reduced traffic congestion and urbanization are additional benefits of such arrangements at the national level. (c)..... in its implementation. At the outset, all industries , occupation types and job functions are not feasible under WFH arrangements. (d)....., as all the paperwork and procedures are still not digitized especially in the public sector, there would be omissions and inefficiencies in carrying out relevant tasks off work premises. (e)..... in order to prevent the spread of Covid-19 pandemic was not fully successful due to the issues existed with related to information and Communications Technology infrastructure, ICT literacy as well as manual processes and procedures.

- (i). *Even though email communication was formalized during the period*
- (ii). *positive impact on the environment*
- (iii). *For instance, the WFH implemented in the public sector of Sri Lanka*



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- (iv). *e.g. better work life balance are the key benefits*
- (v). *which has been stagnating at a low level for a prolonged period*
- (vi). *Nevertheless, WFH arrangements come with some limitations and challenges*

- B. As the manager of an FMCG outlet, you managed to run your branch without much interruption during power cuts and fuel shortages and ensures a smooth supply of goods to customers. Write a report to the General Manager incorporating your ideas in a report that should follow the following format and content. (10 Marks)**

*FMCG – Fast Moving Consumer Goods*

*Introduction - Paragraph 1*

- the issues faced by customers and FMCG outlet managers at present

*Body - Paragraph 2*

- location of your outlet, available products and present stocks

*Body - Paragraph 3*

- techniques used to maintain stocks

*Body - Paragraph 4*

- your suggestions to ensure continuous flow of goods

*Conclusion - Paragraph 5*

- emphasize the importance of being proactive rather than reactive
  - Proactive: (of a person or policy) controlling a situation by making things happen rather than waiting for things to happen and then reacting to them
  - Reactive: (formal) showing a reaction or response









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Year I Semester II

SEMESTER END EXAMINATION

Macroeconomics – BSCM 1213

- This paper consists of SEVEN questions on EIGHT (08) pages.
- Answer FOUR questions including question 01.
- Only Non-programmable calculators are allowed.
- You may use appropriate graphs, diagrams, equation/s to prove or justify the answers.
- If you have any doubt as to the interpretation of the wording of a question, make your own decision, but clearly state it on the script.
- Write legibly.

Date: 2022.03.18

Pass mark: 40%

Time: 02 Hours

### Question 01 (Compulsory)

The paragraphs below were extracted from an e-newspaper and are an economic idea by Dr. W.A Wijewardena, a former deputy governor of the Central Bank of Sri Lanka.

“When the foreign exchange is short, a country cannot import essential raw materials and food items. As a result, the local production gets disadvantaged. For instance, if a country cannot import essential fuel, it cannot maintain its transportation sector, produce electricity, and keep businesses and factories running. It adversely affects domestic production. When the domestic production is low, incomes are low, and as a result, government’s revenue generation is also low.

With low income and stubborn expenditure, the high budget deficit must be financed by the government through borrowings. When the borrowing options are limited due to the contraction of the domestic economy, the only available option is to print money

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and finance the budget. The increase in money supply will generate inflation and it will reactivate the whole cycle of economic downturn in an uncontrollable manner."

- a) What is mean by budget deficit? (01 Mark)
- b) What is the current foreign exchange rate system of Sri Lanka? (01 Mark)
- c) Why foreign exchange reserves are important to a country. (03 Marks)
- d) "The government must cover the budget shortfall by borrowing. However, because rating agencies such as Fitch and Standard & Poor's have downgraded Sri Lanka, it has suffered when borrowing from outside of the country". Elaborate this statement. (04 Marks)
- e) Do you agree with the last statement of the paragraph, "The increase in money supply will generate inflation and it will reactivate the whole cycle of economic downturn in an uncontrollable manner"? Justify your answer. (06 Marks)
- f) Full employment, keeping inflation under control and economic growth are among major macroeconomic goals of all societies. Why is keeping inflation under control regarded as a major macroeconomic goal? Explain the costs and benefits of inflation. (10 Marks)



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### Question 02

Fill in the blanks

- a) The fact that money can be immediately used in exchange, whereas valuable jewelry cannot, illustrates the fact that money is very \_\_\_\_\_.
- b) The measure of the money supply that includes currency of commercial bank and public, deposits with the Central Bank and deposits of other institutions with the Central Bank \_\_\_\_\_.
- c) The portion of bank deposits that a bank must keep on reserve are known as \_\_\_\_\_.
- d) The portion of bank reserves that banks are permitted to lend or invest are known as \_\_\_\_\_.
- e) The rate at which the Central Bank provides credit to commercial banks \_\_\_\_\_.
- f) \_\_\_\_\_ and \_\_\_\_\_ rates provide a lower bound and upper bound respectively, to call rates.
- g) Under expansionary monetary policy by open market operations, Central Bank \_\_\_\_\_ treasury bills from the secondary market in order to inject liquidity to the market.
- h) Under contractionary monetary policy by open market operations, Central Bank \_\_\_\_\_ treasury bills from the secondary market in order to reduce liquidity in the market.
- i) The theory that assumes that the velocity of money is constant in the equation  $M \times V = P \times Y$  is the \_\_\_\_\_.

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- j) The three motives to hold money are \_\_\_\_\_,  
\_\_\_\_\_, \_\_\_\_\_.
- k) The two primary functions of a commercial bank are  
\_\_\_\_\_.
- l) In a commercial bank balance sheet the bank's \_\_\_\_\_ are  
its sources of funds and \_\_\_\_\_ are its uses of funds.
- m) At the start of the twenty-first century, Zimbabwe experienced  
\_\_\_\_\_ inflation so that economists had difficulty  
measuring it.
- n) Phillips curve is a historical inverse relationship between  
\_\_\_\_\_ and \_\_\_\_\_ in an economy.
- o) \_\_\_\_\_ stage of the business cycle characterized by a  
period of rapid economic growth whereas a period of relatively stagnated  
economic growth is a \_\_\_\_\_.
- p) Three main types of Equilibrium Unemployment are  
\_\_\_\_\_.

(25 Marks)

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**Question 03**

- a) A set of macroeconomic data relating to a hypothetical economy is set out below (values are in Rs. Billion)

Salaries and wages	500
Personal income tax	370
Interest income	50
Government transfer payments	350
Corporate profit taxes	20
Undistributed company profit	10
Net income earned from self-employment	30
Net foreign primary income earnings	30

- i. Calculate the National Income (02 Marks)
  - ii. Calculate the Disposable Household Income (04 Marks)
- b) Describe the three approaches to measuring national income. Will they give identical results? (05 Marks)
- c) "Macroeconomics and Microeconomics are different approaches to a common objective" Explain. (04 Marks)
- d) Determine the effect on country GDP for each of the following transactions. Explain your answers. (10 Marks)
- i. A tourist spends on a seafood dinner at a restaurant.
  - ii. A foreign worker finds a job and earns a living in the country.
  - iii. A domestic telecom store that imports smart phones from a foreign country at the cost of \$900 per piece and sells them to students at \$1,000 per piece.
  - iv. An old apartment is transferred from a father to his daughter.
  - v. The government spends more on health services as the air pollution becomes a more serious issue.





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### Question 04

Following information are provided for a 3-sector economy. Values are indicated in Rs. Millions.

$$C = 25 + 0.8Y_d$$

$$T = 0.15Y$$

$$I = 200$$

$$G = 75$$

- a) Calculate equilibrium income (value of output) of the economy algebraically. (05 Marks)
- b) Find difference between government expenditure and the tax revenue. (02 Marks)
- c) The function  $C = C_0 + C_i Y$  is used to calculate the amount of total consumption in an economy. Where C is consumption expenditure and Y is national income.
- What is  $C_0$  and  $C_i$ ? (02 Marks)
  - Explain their specification. (04 Marks)
- d) Explain the relationship between marginal propensity to consume and marginal propensity to saving (04 Marks)
- e) The income-consumption schedule of a hypothetical economy has given as below.

National Income (Rs. Million)	Consumption (Rs. Million)
200	160
300	230

- Derive the consumption function of this economy
- Derive the savings function of this economy (08 Marks)

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### Question 05

- a) Explain demand pull and cost push inflation. (06 Marks)
- b) "Unemployment poses great costs to the economy", Discuss. (06 Marks)
- c) Explain what you understand by the term "equilibrium unemployment". (03 Marks)
- d) Discuss the two types of disequilibrium unemployment. Use diagrams in your answers. (10 marks)

### Question 06

- a) Assume a closed economy with government which suffers from the lack of business confidence. As a result, private investment does not rise, nor does it respond to the changes in interest rate. The government keeps spending to compensate for lack of private spending. But After a change in government business confidence was restored, private investment begins to rise and becomes highly sensitive to changes in interest rate. Analyze the economic impact of this change. If this change is accompanied by a monetary expansion, then how does your answer change? (20 Marks)
- b) Central Bank of Sri Lanka is using different types of instruments under its monetary management as quantitative and qualitative credit controls. What are they? (05 Marks)

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### Question 07

- a) Provide short answers for part (a)
- i. Discuss two functions of the Central Bank of Sri Lanka (02 Marks)
  - ii. List down four limitations of currency board system (04 Marks)
  - iii. What are the two main objectives of handling monetary policy by Central Bank of Sri Lanka (02 Marks)
  - iv. Why commercial banks are required to keep a reserve? (02 Marks)
- b) Select any three and write short notes. (3 \* 5 Marks)
- i. Monetary policy and Fiscal policy.
  - ii. Interest rate corridor
  - iii. Keynes's liquidity preference theory.
  - iv. Credit creation by commercial banks.

-----END OF THE QUESTION PAPER-----



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Year I Semester II

SEMESTER END EXAMINATION

Supply Chain Management – BSCM 1414

- This paper consists of EIGHT questions on NINE (09) pages.
- Answer FIVE questions including question 01.
- Only Non-programmable calculators are allowed.
- You may use appropriate graphs, diagrams, equation/s to prove or justify the answers.
- If you have any doubt as to the interpretation of the wording of a question, make your own decision, but clearly state it on the script.
- Write legibly.
- Supporting document are attached.

Date: 2022.03.15

Pass mark: 40%

Time: 03Hours

### Question 01 (Compulsory)

Write the correct answer on the answer book.

1. Which of the following parties are in the upstream portion of the supply chain?
  - a. Distributor
  - b. Retailer
  - c. Manufacturer
  - d. Wholesaler
2. Which is NOT a type of a supply chain from the below ?
  - a. Continuous replenishment
  - b. Build to replenish
  - c. Build to order
  - d. Make to stock



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3. Which incorrect about purchasing from the below statements?
  - a. Purchasing can be broadly classified into two categories as Merchant and Industrial.
  - b. Purchasing is the act of buying the goods and services that a company needs to operate and/or manufacture products.
  - c. Purchasing is more than simply buying products and contracting for services.
  - d. None of the above.
4. What's NOT a reason for buying from outside?
  - a. To free up resources
  - b. Cost advantage.
  - c. Proprietary technology protection
  - d. Lack of expertise
5. Which of the following is correct about tariff barriers?
  - a. A tariff is an official list or schedule showing the duties, taxes, or customs imposed by the host country on imports or exports.
  - b. A tariff barrier is any measure, other than a customs tariff, that acts as a barrier to international trade.
  - c. Tariff barriers are not controlled by various international organizations.
  - d. None of the above.
6. What's NOT a key for successful partnerships?
  - a. Better information and better materials flow between buyers and suppliers.
  - b. Trust building
  - c. Shared vision and objectives
  - d. Work in isolation



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7. Which of the following statement/s are correct about Jidoka in Lean Management?
- I. The authority of stopping the production line if the quality problems are encountered.
  - II. Jidoka follows the concept of **under capacity** scheduling.
  - III. To encourage jidoka, each worker is given access to a switch that can be used to activate call lights or to halt production.
  - IV. According to Jidoka, workers should be responsible for the product quality.
    - a. Only I and II.
    - b. All of the above.
    - c. None of the above.
    - d. Only I, III and IV.
8. What is/are the considerations in holding inventory in a warehouse?
- I. Cost of not having inventory.
  - II. Price discounts.
  - III. Some safety against uncertainty.
  - IV. Quantity to be sold.
    - a. Only I and IV
    - b. Only I, II and III.
    - c. All of the above
    - d. None of the above.
9. There are different objectives of inventory management.
- I. To strike a balance between Inventory investment and Customer service.
  - II. To avoid excess inventory or inventory shortages.
  - III. Maintaining inventory at an appropriate level.





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What is/ are the major objective/s of inventory management?

- a. Only I and II.
  - b. Only II and III.
  - c. All of the above.
  - d. None of the above.
10. Which is NOT a critical flow of supply chain integration framework?
- a. Product/ service value flow.
  - b. Market accommodation flow.
  - c. Cash flow
  - d. Product returns flow
- (10\* 02 marks)

### Question 02

- a. "NESTA" is a tea export company at the start up level and also with a poor investment capability. However, expecting that there will be a higher demand for their products in future, NESTA is going to invest in a private warehouse. Do you think that this would be a viable decision for the company? Suppose that you are being appointed as a consultant to NESTA company and advise them regarding the most suitable type/s warehouse/s that they can utilize in their business.

(08 marks)



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b. ABC Traders is a company which is currently operating in Sri Lanka and manufactures rubber tyre. They currently carry out all the operations inhouse but at the same time they wish to outsource **half of their operations** in future. Elaborate in detail, the reasons for ABC Traders to outsource half of their operations and carry out other half of operations inhouse.

(06 marks)

c. Further, ABC Traders wishes to search the market for suitable and reliable suppliers to carry out the operations on behalf of them. What do you think are the criteria that ABC Traders may consider in the process of Supplier selection?

(06 marks)

### Question 03

a. Nimal is a distributor of soft drinks and he has set up his business recently and unaware about the phenomenon of bullwhip effect. Explain Nimal what exactly is bullwhip effect? in your own words.

(07 marks)

b. With the growth of Nimal's business, he wishes to integrate with other channel partners in the supply chain such as wholesalers, retailers and manufacturers too. However, Nimal is totally unaware about the cons of the integration process. Explain Nimal about the obstacles to integration.

(07 marks)

c. Explain product/service value flow in the supply chain in detail.

(06 marks)



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### Question 04

- a. Samal runs a garment business and always maintain a higher amount of inventory in warehouses regardless of the demand pattern. Explain Samal, the major goal of inventory management and the cons of maintaining a higher level of inventory in warehouses.

(06 marks)

- b. Samal's friend Nimal considers inventory as just a cost for the business. Do you agree with Nimal? What do you think are the functions of inventory?

(06 marks)

- c. Briefly describe the below type of inventories in your own words.

- i. Safety/buffer stock.
- ii. Pipeline stock.
- iii. Speculative stock.
- iv. Base stock.

(2\*4 marks)

### Question 05

The Logistics Manager at St. Mathews Group which produce 'hard hats' want to forecast the sales for the year 2021. The historical data of sales is as follows:

Year	2020						
Month	June	July	Aug	Sep	Oct	Nov	Dec
Demand	5600	6300	5800	7000	6100	5950	5000





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Based on the above data, answer the following questions

- (i) The Naïve forecast for the month of January 2021  
 (02 marks)
- (ii) The four- month Simple Moving Average forecast for January 2021  
 (02 marks)
- (iii) The Weighted Moving Average forecast for January 2021 using the weights 0.15, 0.23, 0.33  
 (04 marks)
- (iv) The Exponential Smoothing forecast for January 2021 with  $\alpha = 0.42$   
 (Assume the forecast for November is 6000 units)  
 (04 marks)

Calculate the Forecasting error, RSFE (with interpretation), MAD, MSE using the below data.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Forecast	517	514	515	516	510	519	513	512
Actual	516	512	516	513	512	518	515	510

(08 marks)



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### Question 06

- a. Deanika wishes to implement lean production strategies in her business which is currently operating as she thinks the business needs to reduce the waste in every way. Explain Deanika, about the types of wastes that she needs to reduce in lean production as well as the elements of implementing lean production.
- (10 marks)
- b. Explain Deanika about the concepts of **Kaizen** and **Jidoka** in your own words as the two concepts are a part of lean production and will be useful for her in future operations of the business.

(10 marks)

### Question 07

- a. Use a real-world example and describe how an optimal location for a company is decided.
- (06 marks)
- b. A student who has recently graduated is planning to start up his own venture with the name "Fast pace delivery". A company which aims to deliver packages and parcels within 24 hours to any destination within Sri Lanka. The student doesn't have sufficient knowledge as to where to locate facilities to pick and sort packages before delivering them to the destinations. As a student learning Supply Chain Management, advice this student regarding the location strategies that he has to utilize when locating the facilities in order to meet his objective of "delivery within 24 hours".

(10 marks)

- c. Explain in brief, the factors that a firm should consider before going global.

(04 marks)



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### Question 08

a. Kanishka is going to start a multinational company and wishes to deal with numerous suppliers worldwide. In that case, as a friend of Kanishka advise him regarding the key criteria that he needs to consider when developing an effective supplier relationship.

(06 marks)

b. Local companies most of the times tend to buy from overseas nations because of various reasons, elaborate in detail, the reasons for the local companies to engage in international purchasing.

(10 marks)

c. Why is international purchasing more complicated than the local purchasing?

(04 marks)

-----END OF THE QUESTION PAPER-----



## Formula sheet

$$SMA = \frac{A_1 + A_2 + \dots + A_n}{n}$$

$$F_{t+1} = W_1 D_t + W_2 D_{t-1} + \dots + W_n D_{t-n+1}$$

$$RSFE = \sum e_t$$

$$MSE = \frac{1}{n} \sum_{i=1}^n (Y_i - \hat{Y}_i)^2$$

$$MAD = \frac{\sum |F_t - A_t|}{n}$$

$$F_t = F_{t-1} + \alpha (A_{t-1} - F_{t-1})$$



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**Year 1 Semester II**  
**SEMESTER END EXAMINATION**  
**Business Law – BSCMI309**

- This paper consists of EIGHT questions on THREE (03) pages.
- Answer FIVE questions including question 01.
- You may use appropriate graphs, diagrams, equation/s to prove or justify the answers.
- If you have any doubt as to the interpretation of the wording of a question, make your own decision, but clearly state it on the script.
- Write legibly.

Date: 2022.03.12

Pass mark: 40%

Time: 03 Hours

**Question 1 (Compulsory)**

There is no necessary relationship between law and morality. Once a law has been properly enacted one has no other option than to obey the law.

Critically evaluate the above statement from the perspectives of natural law and positivism.

(20 Marks)

**Question 02**

- a) List out the sources of domestic law (5 Marks)
- b) What are the requirements that needs to be met in order to establish a custom as a Source of law?

(15 Marks)

**Question 03**

- a) What is meant by 'International law' in the contemporary world? (5 Marks)
- b) Define statehood under international law and briefly discuss the requirements of statehood.

(15 Marks)



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## Question 04 (Answer Either Part 1 or Part 2)

### Part 1

- a) What is a contract? (5 Marks)
- b) A counteroffer is not an offer but something which destroys the initial offer. Do you agree with the above statement? state your answer with decided case law. (15 Marks)

### Part 2

- a) Differentiate between unilateral and bilateral offers (10 Marks)
- b) Domestic Agreements are not generally enforceable. Do you agree with the above statement? Substantiate your answer with decided case law. (10 Marks)

## Question 05

- a) What is meant by an agency agreement? (6 Marks)
- b) What are the different means by which an agency relationship may occur? (4 Marks)
- c) What are the requirements that have to be met in order to create an agency relationship through ratification? (10 Marks)

## Question 06

- a) What is a partnership? (5 Marks)
- b) A partner is both an agent as well as a principal. Do you agree with the above statement? Critically explain your answers (10 Marks)
- c) List out the instances in which a court may dissolve a partnership (5 Marks)





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### Question 07

- a) A company is a separate legal entity which has an existence that is independent of its members. Explain the above statement in light of the Salomon principle. (10 Marks)
- b) Briefly explain the steps to be taken in incorporating a private company in Sri Lanka by making reference to the Companies Act No 07 of 2007 (10 Marks)

### Question 08 (Answer either Part 1 or Part 2)

#### Part 1

Explain the following concepts regarding a contract of insurance

- a) Uberrima fides (5 Marks)  
b) Insurable interest (5 Marks)  
c) Causa proxima (5 Marks)  
d) Subrogation (5 Marks)

#### Part 2

Write short notes on any of the following 2 (2x10 Marks)

- a) Monism and Dualism  
b) Doctrine of Stare Decisis  
c) Valuable Consideration and Justa Causa  
d) Conditions and Warranties  
e) Agency of necessity

-----END OF THE QUESTION PAPER-----



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Year I Semester II

REPEAT EXAMINATION

Business Statistics – BSCM 1308

- This paper consists of EIGHT questions on EIGHT (08) pages.
- Answer FIVE questions including question 01.
- You may use appropriate graphs, diagrams, equation/s to prove or justify the answers.
- If you have any doubt as to the interpretation of the wording of a question, make your own decision, but clearly state it on the script.
- Write legibly.

Date: 2020.08.01

Pass mark: 40%

Time: 03 Hours

**Question 01: Compulsory**

- (a) Priyanka collected wild mushrooms every day for a week. When she got home each day, she weighted them to the nearest 100 g. The weights are shown below:

500 , 700 , 400 , 300 , 900 , 300 , 300

- Write down the mode for these data.
- Calculate the mean for these data.
- Find the median for these data.

On the next day, Priyanka collected 550 g of wild mushrooms.

- Write down the effect this will have on the mean, the mode and the median

(08 Marks)

- (b) The Probability that a member of a sports club plays hockey (H) is 0.3 and the probability that the member plays cricket (C) is 0.5 The probability that the member plays both sports is 0.25., Find

- $P(H \cup C)$
- $P(H' \cap C')$
- $P(H \cup C')$



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(06 Marks)

- (c) A discrete random variable  $X$  has the probability distribution shown in this table.

$x$	0	1	2	3
$P(X=x)$	$1/8$	$1/4$	$1/2$	$1/8$

Find,

- (i)  $P(1 \leq X < 3)$
- (ii)  $P(X > 2)$
- (iii)  $P(X < 3)$

(06 Marks)

- (d) An officer is always late to the office and arrives within the grace period of fifteen minutes after the start. Let  $X$  be the time that elapses between the start and the time the officer signs in with a probability density function

$$f(x) = \begin{cases} kx^2 & 0 \leq x \leq 15 \\ 0 & \text{otherwise} \end{cases}$$

where  $k > 0$  is a constant.

- (i) Compute the value of  $k$ .
- (ii) Find the Probability that the he arrives less than 10 minutes after the start of the office.

(05 Marks)

- (e) Find the Number of arrangements that can be made by using all the letters of the word ANURADHAPURAYA. Find, in how many of these arrangements the vowels are separated.

(05 Marks)

- (f) Consider the discrete random variable  $X \sim B(10, 0.5)$   
 Find,







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### Question 03

- (a) The table shows the lengths of the films in a film festival, to the nearest minute. weights of 50 employees of a Merck company represented by the following table:

Length (min)	F
$80 \leq X < 89$	3
$90 \leq X < 99$	16
$100 \leq X < 109$	22
$110 \leq X < 119$	7
$120 \leq X < 129$	2

- (i) Plot the histogram and frequency polygon. (04 Marks)  
 (ii) Calculate the mean and median. (02 Marks)  
 (iii) Calculate First quartiles and Third quartile (02 Marks)  
 (iv) Calculate mode (02 Marks)
- (b) A and B are two events such that  $P(A) = 0.45$ ,  $P(B) = 0.3$  and  $P(A \cap B) = 0.25$ . Find,

(i)  $P(A/B)$  (ii)  $P(B/(A \cup B))$  (iii)  $P(A'/B')$

(10 Marks)

### Question 04

Vehicles approaching a crossroad must go in one of the three directions: left, right or straight on. Observations of traffic engineers reveal that of vehicles approaching from the west: 45 % turn left, 25% turn right and the rest go straight on. Assuming that the



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driver of each vehicle chooses direction independently, find the probability that of the next three vehicles, approaching the crossroad from the west,

- (a) all go straight on,
- (b) all go in the same direction,
- (c) two turns right and one turn left,
- (d) all go in different directions.

If the three consecutive vehicles, all go in the same direction, show that most of the time they all turn left.

(20 Marks)

### Question 05

(a) An examination was held to decide the awarding of a scholarship. The weights of various subjects were different. The marks obtained by 3 candidates (out of 100 in each subject) are given below:

Subject	Weight	Students		
		A	B	C
Mathematics	4	58	57	64
Physics	3	62	63	67
Chemistry	2	54	53	62
English	1	68	76	49

Calculate the weighted Arithmetic Mean to award the scholarship.

(10 Marks)

(b) A class of 13 girls and 12 boys. All these 25 students are subjected to a written test, and the summary of results are below.

	Boys	Girls
Mean	32	38
Standard Deviation	5.2	4.2





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Find the Compound mean and Standard deviation for all the students.

(10 Marks)

### Question 06

- (a) Let A and B be two events of a sample space  $\Omega$  with  $P(B) > 0$ . Define  $P(A/B)$ , the conditional probability of A given B

Show that  $P(A) = P(B) \cdot P(A/B) + P(B') \cdot P(A/B')$ , where  $0 < P(B) < 1$  and  $B'$  denotes the complementary event of B.

(10 Marks)

- b) Write short notes on any **FIVE** of the following;

- (i) Types of Data
- (ii) Arithmetic and Geometric Mean
- (iii) Percentage Bar charts
- (iv) Data Collection methods
- (v) First Quartile
- (vi) Mode

(10 Marks)

### Question 07

- (a) A Student council of 12 Students consists of 3 Science students, 5 Arts students and 4 Commerce students. It is required to select 6 students from this student council to work on a project. Find the number of different ways in which this can be done, if



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- (i) all 12 students are eligible to be selected,
- (ii) two particular students are not permitted to work together
- (iii) two students from each of the subject stream need to be selected.

Also ,

find the number of different ways in which a group selected under (iii) above can be seated around a circular table, if the two students from the science stream in the group are not permitted to sit next to each other.

(10 Marks)

- (b) The table below shows the quantity in hundred kgs of Wheat, Barley and Oats produce on a certain farm during the years 1988 to 1991.

Year	Wheat	Barley	Oats
1988	32	30	18
1989	26	36	18
1990	21	18	41
1991	33	25	22

- (i). Construct a component bar chart to illustrate this data.
- (ii). Construct a multiple bar chart to illustrate this data.
- (iii). Draw the Pie-charts for 1988 and 1989.

(10 Marks)

### Question 08

(a)

- (i) A and B are two exhaustive and mutually exclusive events in S.  
 If  $P(A) = 2/5$ , Find  $P(B)$
- (ii) A third event C in S is such that A and C are independent and  $P(C) = 1/3$ .  
 Calculate  $P(A \cap C)$ ,  $P(A \cup C)$ ,  $P(A' \cap C')$
- (iii) Are  $A'$  and  $C'$  independent? Justify Your Answer.

(08 Marks)



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(b) Find the Number of arrangements that can be made by using all the letters of the word "GADALADENIYA". Find, in how many of these arrangements the vowels are separated.

(06 Marks)

(c) Let A, B, and C be mutually exclusive and exhaustive events of a sample space  $\Omega$ . If  $P(A) = 2p$ ,  $P(B) = p^2$  and  $P(C) = 4p - 1$ , find the value of p.

(06 Marks)

-----END OF THE QUESTION PAPER-----



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Year I Semester II  
**REPEAT EXAMINATION**  
Macroeconomics – BSCM 1213

- This paper consists of SEVEN questions on EIGHT (08) pages.
- Answer FOUR questions including question 01.
- Only non-programmable calculators are allowed.
- You may use appropriate graphs, diagrams, equation/s to prove or justify the answers.
- If you have any doubt as to the interpretation of the wording of a question, make your own decision, but clearly state it on the script.
- Write legibly.

Date: 2020.07.31

Pass mark: 50%

Time: 02 Hours

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**Question 01: (Compulsory)**

**(a) Unemployment in Morocco (Tertiary Sector)**

Morocco's banking industry has been described as one of the best in Africa. It has some of Africa's largest commercial banks, but three out of nineteen control more than two-thirds of the market. These three have grown mostly through mergers and it is expected more mergers will occur between Moroccan banks in the future.

The banks make use of brand names, set their own interest rates on loans and provide some different services. The larger banks tend to lend to large firms. Small and medium sized firms find it more difficult to get loans. More than 60% of the population now make use of the services of commercial banks. The proportion of families opening savings accounts at commercial banks is increasing.

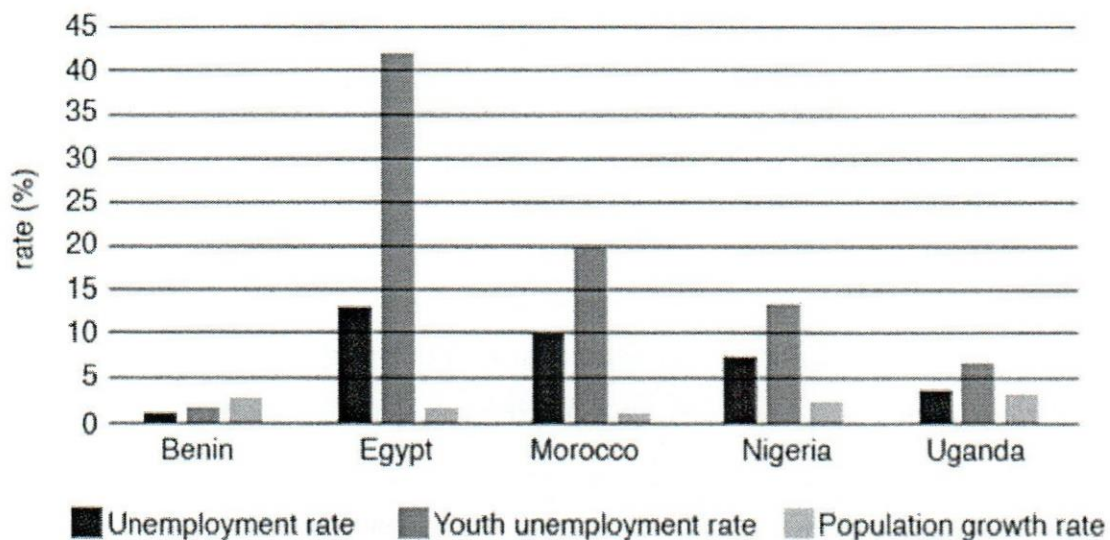
Moroccan banks now have branches in 22 African countries as well as a number of European countries. They are also expanding in Morocco, creating more jobs. Morocco has a relatively high unemployment rate. Fig. 1 shows the unemployment

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rate in 2015 in a range of African countries including Benin, a relatively poor country. Benin has a large labour-intensive, subsistence farming sector.

Fig. 1 also shows youth unemployment and population growth. Unemployment rates vary between different groups. Youth unemployment is often twice the rate of the overall unemployment rate.

**Fig. 1 The unemployment rate, youth unemployment rate and population growth rate in selected African countries in 2015**



In Morocco, the population is increasing at a faster rate than new jobs are being created. The rising unemployment rate is affecting wage rates in the country. As with unemployment, wage rates vary between different groups. Older workers, for example, tend to be paid more than younger workers.

- (a) Identify two functions of a commercial bank using information from the extract. (02 Marks)
- (b) Analyse why a commercial bank **may not** prefer to sell its services in home country rather than in foreign countries. (04 Marks)



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- (c) Analyse whether the information in Fig. 1 supports the view that:
- (i) Countries with high population growth rates have a high unemployment rate. (03 Marks)
  - (ii) Youth unemployment rate is usually twice that of the overall unemployment rate. (05 Marks)
- (d) Discuss whether or not older workers are always paid more than younger workers. (05 Marks)
- (e) Explain, using information from the extract, one reason why a relatively poor country may have a low unemployment rate. (06 Marks)

**Question : 02**

- (a) The national data details were shown below of a hypothetical economy.

Description	Value
Tax	80
Subsidies	300
Insurance	80
Mining and Quarrying	50
Horticulture	30
Construction	50
Private Services	80
Government Services	120
Agriculture, Livestock and Forestry	250
Restaurants	150
Transport and Communication	200
Factor Income from Abroad	110
Electricity, Gas and Water	120



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Residential Care and Social Work Activities	30
Factor spending for Abroad	80
Depreciation	80

You are required to calculate,

(a)

- (i) Sum of value added by Tertiary Sector
- (ii) GDP at Factor Cost Price
- (iii) GDP at Market Prices
- (iv) Net Domestic Production

(04\*4 Marks each)

(b) Briefly explain the of “**Autonomous Consumption**” using by illustrating in a suitable graph. (04 Marks)

(c) If an economy Investment \$ 200Mn, Government Expenditure \$ 125, Net Taxes fix \$ 100mn, Consumption function  $C=15+0.6Y_d$ ,

Find the equilibrium level of Income of the economy ?

{Use the formula of  $AD= C+I+G+(X-M)$ }

(05 Marks)

**Question : 03**

In February 2017, China’s central bank raised the rate of interest. It wanted to reduce borrowing and the growth of the money supply, but it was worried that the rise in the interest rate might reduce the country’s economic growth rate. The change in interest rate is likely to have increased the workload of skilled commercial bank workers.

- (a) Identify **two** characteristics of money. (02 Marks)
- (b) Briefly explain the term of standard deferred of payment. (05 Marks)
- (c) Explain **three** agency functions of Central Bank. (06 Marks)

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- (d) Briefly explain how the rise in the interest rate might reduce the country's economic growth rate. (05 Marks)
- (e) Analyse why skilled workers are usually paid more than unskilled workers. (07 Marks)

**Question : 04**

"Economic growth is an increase in the capacity of an economy to produce goods and services, compared from one period to another. It can be calculated in nominal as well as in real terms".

- (a) Briefly explain the limitations of Economic growth in Sri Lanka and the strategies, those can be undertaken for achieving a sustainable economic growth. (Use appropriate examples) (06 Marks)
- (b) "Sustainable Development Goals set by United Nation Development Programme, are mainly targeted to transform our world in 2030". Briefly explain the following 3 goals with appropriate examples,  
(i) No poverty  
(ii) Zero hunger  
(iii) Good Health and Well Being (03 Marks Each)
- (c) Explain the main criteria to be used in the calculation of Human Development index (HDI) , while ranking countries for High HDI, Medium HDI and Low HDI (05 Marks)
- (d) Briefly explain the relationship between Millennium Development Goals and Sustainable Development Goals. (05 Marks)



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**Question : 05**

High technology (hi-tech) firms use a range of resources including labour and land. One US hi-tech firm has produced a new price index which it claims is more accurate than the Consumer Prices Index (CPI). Central banks try to achieve the most accurate measure of inflation because inflation has effects on a range of people, including savers and borrowers, and on the level of investment in a country.

- (a) Define Retail Price Index (CPI) (04 Marks)
- (b) Identify the reward received by labour and the reward received by enterprise. (04 Marks)
- (c) Explain how inflation may affect savers. (04 Marks)
- (d) Explain "Nominal Interest Rates". (05 Marks)
- (e) Analyse why it is important to a government that inflation is measured accurately. (08 Marks)

**Question: 06**

Mali is a developing country. Its Human Development Index (HDI) rose from 0.297 in 2000 to 0.442 in 2016. Most of Mali's workers are employed in agriculture and cotton is the country's main agricultural crop. The country's main export, however, is gold. The country is the third largest exporter of gold in Africa.

- (a) Identify two components of the HDI. (03 Marks)
- (b) Identify the characteristics of a Developing Country (05 Marks)
- (c) Explain how the proportion of a country's resources devoted to the primary, secondary and tertiary sectors change as its economy develops. (05 Marks)



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- (d) Analyze, using a demand and supply diagram, how a fall in the price of Cotton would affect the market for cotton shirts. (05 Marks)
- (e) Discuss whether or not an increase in the size of a country's gold mining industry will benefit an economy. (07 Marks)

**Question : 07**

**Part - A**

Imagine an economy defined by the following:

$$C = 200 + 0.6 (Y_d).$$

This is the consumption function where 200 is autonomous consumption, 0.6 is the marginal propensity to consume, and  $Y_d$  is disposable (i.e. after tax income).

$Y_d = Y - T$ , where  $Y$  is national income (or GDP) and  $T = \text{Tax Revenues} = 0.4Y$ ; note that 0.3 is the average income tax rate.

$$I = \text{Investment} = 100$$

$$G = \text{Government spending} = 500$$

$$X = \text{Exports} = 200$$

$$M = \text{Imports} = 0.55Y$$

- i. Determine the aggregate expenditure function. Using the numbers from above and solve  $Y$ . (03 Marks)
- ii. If the Keynesian consumption function is  $C = 150 + 0.75 Y_d$  then, if disposable income is \$ 500, What is amount of total consumption ? (02 Marks)

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**Part - B**

**Write short notes for any four (04) of the following**

- (a) High Powered Money
- (b) Sustainable Development Goals - (Quality Education)
- (c) Money Supply
- (d) Structural Unemployment
- (e) Economic Recession
- (f) Economic Growth
- (g) Macroeconomic Variables

(05 \*4 Marks Each)

-----END OF THE QUESTION PAPER-----

Cebravy

01



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Year I Semester II

REPEAT EXAMINATION

Financial and Cost Accounting – BSCM1210

- This paper consists of SEVEN questions on SEVEN (07) pages.
- Answer FOUR questions including question 01.
- Only Non-programmable calculators are allowed.
- You may use appropriate graphs, diagrams, equation/s to prove or justify the answers.
- If you have any doubt as to the interpretation of the wording of a question, make your own decision, but clearly state it on the script.
- Write legibly.

Date: 2020.07.31

Pass mark: 40%

Time: 02 Hours

### Question 01

The trial balance of TPL Logistics PLC as at 31 March 2019 is given below.

	SLR in. 000's	
	Dr.	Cr.
Interest Expenses	85	
Building Maintenance	5400	
Utility expenses	1700	
Cash and Cash equivalents	3500	
Property, plant and equipment - at cost		





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Buildings	7,400	
Motor vehicle	5,400	
Furniture and fittings	1,980	
Office equipment	1,800	
Accumulated depreciation as at 1 April 2018:		
Buildings		940
Motor vehicles		1,640
Furniture and fittings		320
Office equipment		650
Inventory	4,500	
Trade receivables/Trade Payables	4,680	3900
Provision for doubtful debts as at 1 April 2018		70
Cost of sales/Sales	16,500	35,780
Employee Remuneration	13,500	
Advertising and Promotions	1,600	
Stated Capital		19,296.5
Preference share Capital		2,848.5
Retained earnings as at 1 April 2018		1,600
12% debentures		1,000
	<b>68,045</b>	<b>68,045</b>



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Following are the adjustments which should be made in the financial statements for 2018/2019 financial year. (All figures are in SLR)

- (1) Inventory as at 31<sup>st</sup> March 2019 amounting to Rs.500, 000.
- (2) Following expenses are accrued as at 31<sup>st</sup> March 2019.
  - Utility Rs.150,000
  - Advertising and Promotions Rs.125, 000
- (3) For 2018/2019 depreciation expenses has not been charged.
  - Buildings - Cost 15 % per annum.
  - Motor vehicles- Cost 12 % per annum.
  - Furniture & Fittings- Net Book Value based 18 % per annum.
  - Office Equipment- Cost 10 % per annum
- (4) Corporate tax rate imposed by Inland Revenue Department (IRD) of Sri Lanka is 34% Per annum. For 2018/2019 year of assessment income tax has not been adjusted.

Required:

- (a) Prepare Income statement for the financial year 2018/2019. (10 Marks)
- (b) Prepare the statement of financial position as at 31<sup>st</sup> March 2019. (15 Marks)



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### Question 02

Tenda PLC uses a standard costing system. The following information relates to the company's Tenda product for the month of May.

	Standard data	Actual data
<b>Sales</b>		
Sales Volume units	12,000	10,000
Selling Price per unit	35.00	26.50
<b>Production</b>		
Materials used per unit (kg)	2.50	3.80
Materials price per kg	12.00	11.30
Labour hours per unit	2.5	1.75
Labour rate per hour	11.50	13.50

Calculate the following variances:

- (a) Sales Price
- (b) Sales Volume
- (c) Materials Price
- (d) Materials Usage
- (e) Labour Rate
- (f) Labour Efficiency

(25 Marks)





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**Question 03**

(a) Distinguish between the following terms giving examples of each.

- i. Direct and indirect costs.
- ii. Fixed and variable costs.

(15 Marks)

(b) What is the difference between the financial accounting and management accounting?

(10 Marks)

**Question 04**

Santa Goods operates a single-product business manufacturing and selling a Product "AXE".

Items	Amounts
Annual Volume	15 000 units
Selling Price Per Unit	\$40
Variable manufacturing cost per unit	\$12
Annual fixed manufacturing costs	\$40 000
Variable marketing and distribution costs per unit	\$8
Annual fixed non-manufacturing costs	\$10 000

Required:



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- (a) Calculate the break-even units
- (b) Calculate the margin of safety in units
- (c) Define the Breakeven point and margin of safety
- (d) Calculate the profit expected by selling 18,000 units
- (e) Show the break even point by using the graph.

(25 Marks)

### **Question 05**

- (a) Explain the Accounting cycle and main functions of accounting. (10 Marks)
- (b) Discuss the qualitative characteristics of financial information. (15 Marks)

### **Question 06**

- (a) Discuss the five types of financial statements that needs to be prepared and present by a business. (10 Marks)
- (b) Discuss four main stakeholders who uses the financial information to make the decisions and the reasons that they need that information. (15 Marks)

### **Question 07**

Show the impact of the below transactions to the accounting equation of the sole trader business of Ms. Jelly. ( $A = L + E$ )

- (a) Started business with cash value of Rs. 800,000.
- (b) Purchase the motor vehicle worth of Rs.5,000,000.



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- (c) Purchase Building worth of 3,500,000, by paying 20% cash and balance is payable in 5 years' time.
- (d) Purchased merchandising inventory for cash Rs. 80,000 and on account Rs. 20,000 from Mr. Perera.
- (e) Invest in Shares of JKH Holding PLC for Rs.1,000,000.
- (f) Cash Sales Rs. 850,000 and credit sales Rs. 1,250,000.
- (g) During the period Employees remuneration is Rs. 950,000. This is fully paid.
- (h) Commission payable during the trading was Rs. 95,000.
- (i) Received cash dividend Rs. 150,000 on investment of shares.

(25 Marks)

-----END OF THE QUESTION PAPER-----





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BMgt. Hons in Retail Marketing and Branding  
Course CODE: COM555

Year 1 Semester II  
SEMESTER END EXAMINATION  
Business Statistics – BRMBI308

- This paper consists of SEVEN (07) questions on NINE (09) pages.
- Answer FOUR (04) questions including question 01.
- Only Non-programmable calculators are allowed.
- You may use appropriate graphs, diagrams, equation/s to prove or justify the answers.
- If you have any doubt as to the interpretation of the wording of a question, make your own decision, but clearly state it on the script.
- Write legibly.

Date: 2020.03.10

Pass mark: 40%

Time: 03 Hours

---

**Question 01 : (Compulsory)**

- (a) Ms. Shamali collected wild mushrooms every day for a week. When she got home each day, she weighted them to the nearest 100 g. The weights are shown below:

550, 800, 300, 300, 1100, 800, 800

- (i) Write down the mode for these data. (02 Marks)
- (ii) Calculate the mean for these data. (02 Marks)
- (iii) Find the median for these data. (02 Marks)



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On the next day, Ms. Shamali collected 500 g of wild mushrooms.

- (iv) Write down the effect this will have on the mean, the mode and the median (02 Marks)

- (b) The Probability that a member of a sports club plays hockey (P) is 0.5 and the probability that the member plays cricket (Q) is 0.4 The probability that the member plays both sports is 0.35., Find

- (i)  $P(P \cup Q)$  (02 Marks)  
 (ii)  $P(P' \cap Q)$  (02 Marks)  
 (iii)  $P(P \cup Q')$  (02 Marks)

- (c) A discrete random variable X has the probability distribution shown in this table.

Table 1.1: Probability Distribution

x	0	1	2	3
$P(X=x)$	1/8	1/4	1/8	1/2

Find,

- (i)  $P(1 < X \leq 4)$  (02 Marks)  
 (ii)  $P(X < 2)$  (02 Marks)  
 (iii)  $P(X > 2)$  (02 Marks)



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- (d) An officer is always late to the office and arrives within the grace period of twelve minutes after the start. Let  $X$  be the time that elapses between the start and the time the officer signs in with a probability density function

$$f(x) = \begin{cases} kx^2 & 0 \leq x \leq 12 \\ 0 & \text{otherwise} \end{cases}$$

where  $k > 0$  is a constant.

- (i) Compute the value of  $k$ . (2.5 Marks)
- (ii) Find the Probability that the he arrives less than 5 minutes after the start of the office. (2.5 Marks)
- (e) Find the Number of arrangements that can be made by using all the letters of the word KAHATAGASDIGILIYA. Find, in how many of these arrangements the vowels are separated. (05 Marks)
- (f) Consider the discrete random variable  $X \sim B(15, 0.6)$   
 Find,  
 (i)  $P(X = 3)$  (ii)  $P(X \leq 4)$  (05 Marks)





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- (g) The mean and the standard deviation of 100 observations were calculated as 30 and 4.1 respectively. It was later found that one observation has been erroneously recorded as 45 instead of the correct value 35. Compute the correct mean and the standard deviation of the 100 observations. (05 Marks)

### Question 02

- (a) Let A, B and C be any THREE events in Sample Space S. Find the expressions for the following events.

- |                                   |            |
|-----------------------------------|------------|
| (i) All three events occur        | (01 Marks) |
| (ii) At least one occurs          | (01 Marks) |
| (iii) Only A occurs               | (01 Marks) |
| (iv) Both A and B but C not occur | (01 Marks) |
| (v) At least two occur            | (01 Marks) |
| (vi) One and no more occurs       | (01 Marks) |
| (vii) Exactly two occur           | (02 Marks) |

- (b) The events A and B are such that  $P(A) = \frac{1}{3}$ ,  $P(B) = \frac{2}{5}$  and  $P(B|A') = \frac{9}{20}$  find

- (i).  $P(A \cap B)$  (ii).  $P(A \cup B)$  (iii).  $P(A'|B)$  (iv).  $P(A|B)$

(12 Marks)



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### Question 03

- (a) The table shows the lengths of the films in a film festival, to the nearest minute. weights of 50 employees of a Merck company represented by the following table:

Table 3.1: Weights

Length (min)	F
$60 \leq X < 69$	6
$70 \leq X < 79$	13
$80 \leq X < 89$	18
$90 \leq X < 99$	12
$100 \leq X < 109$	1

- (i) Plot the histogram and frequency polygon. (04 Marks)  
 (ii) Calculate the mean and median. (02 Marks)  
 (iii) Calculate First quartiles and Third quartile (02 Marks)  
 (iv) Calculate mode (02 Marks)

- (b) A and B are two events such that  $P(A) = 0.45$ ,  $P(B) = 0.5$  and  $P(A \cap B) = 0.25$ . Find,

(i)  $P(A/B)$  (ii)  $P(B/(A \cup B))$  (iii)  $P(A'/B')$

(10 Marks)



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### Question 04

Vehicles approaching a crossroad must go in one of the three directions: left, right or straight on. Observations of traffic engineers reveal that of vehicles approaching from the west: 35 % turn left, 30 % turn right and the rest go straight on. Assuming that the driver of each vehicle chooses direction independently, find the probability that of the next three vehicles, approaching the crossroad from the west,

- (a) all go straight on, (05 Marks)
- (b) all go in the same direction, (05 Marks)
- (c) two turns right and one turn left, (05 Marks)
- (d) all go in different directions. (05 Marks)

If the three consecutive vehicles, all go in the same direction, show that most of the time they all turn left.

### Question 05

- (a) An examination was held to decide the awarding of a scholarship. The weights of various subjects were different. The marks obtained by 3 candidates (out of 100 in each subject) are given below:





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Table 5.1: Marks

Subject	Weight	Students		
		A	B	C
Mathematics	4	60	57	62
Physics	3	62	61	67
Chemistry	2	55	53	60
English	1	67	77	49

Calculate the weighted Arithmetic Mean to award the scholarship. (10 Marks)

- (b) A class of 22 girls and 23 boys. All these 45 students are subjected to a written test, and the summary of results are below.

Table 5.2: Summary of Results

	Boys	Girls
Mean	32	35
Standard Deviation	6.2	4.3

Find the Compound mean and Standard deviation for all the students. (10 Marks)

### Question 06

- (a) Let A and B be two events of a sample space  $\Omega$  with  $P(B) > 0$ . Define  $P(A/B)$ , the conditional probability of A given B



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Show that  $P(A) = P(B) \cdot P(A/B) + P(B') \cdot P(A/B')$ , where  $0 < P(B) < 1$  and  $B'$  denotes the complementary event of  $B$ . (10 Marks)

b) Write short notes on any **FIVE** of the following;

- (i) Discrete Random Variable
- (ii) Secondary Data sources
- (iii) Bayes Theorem
- (iv) Continuous Probability Distributions
- (v) Conditional Probability
- (vi) Mean and Variance of Connected Distribution (10 Marks)

### Question 07

- (a) A Student council of 15 Students consists of 3 Science students, 5 Arts students and 7 Commerce students. It is required to select 6 students from this student council to work on a project. Find the number of different ways in which this can be done, if
- (i) all 15 students are eligible to be selected,
  - (ii) two particular students are not permitted to work together
  - (iii) two students from each of the subject stream need to be selected.



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Also, find the number of different ways in which a group selected under (iii) above can be seated around a circular table, if the two students from the science stream in the group are not permitted to sit next to each other. (10 Marks)

- (b) The table below shows the quantity in hundred kgs of Wheat, Barley and Oats produce on a certain farm during the years 1988 to 1991.

Table 7.1: Quantity

Year	Wheat	Barley	Oats
1988	30	32	18
1989	30	32	18
1990	21	19	40
1991	35	23	22

- (i). Construct a component bar chart to illustrate this data.  
 (ii). Construct a multiple bar chart to illustrate this data.  
 (iii). Draw the Pie-charts for 1989 and 1988. (10 Marks)

-----END OF THE QUESTION PAPER-----





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Course CODE: COM552

Year I Semester II

SEMESTER END EXAMINATION

Supply Chain Management – BSCM 1414

- This paper consists of EIGHT questions on SIX (06) pages.
- Answer FIVE questions including question 01.
- Only Non-programmable calculators are allowed.
- You may use appropriate graphs, diagrams, equation/s to prove or justify the answers.
- If you have any doubt as to the interpretation of the wording of a question, make your own decision, but clearly state it on the script.
- Write legibly.

Date: 2020.03.10

Pass mark: 40%

Time: 03 Hours

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### Question 01: (Compulsory)

#### Avaya

Avaya is a global force in business collaboration and communications technology. The company was suffering from a range of supply chain maladies, including a long cash-to-cash cycle, an imbalance in supplier terms and conditions, excess inventory, and supply chain processes that were inefficient and wholly manual. Aside from having too many disparate and redundant processes, the company had multiple IT solutions as a result of many acquisitions, none of which provided a holistic view of the supply chain or supported focused analysis.

The company put its trust in cloud technology, which was relatively immature at the time, and migrated all processes onto one platform, which was designed to automate



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non-value-added activities and integrate those critical to proactive supply chain management, namely:

- Point of sale analysis
- Procurement analysis
- Supplier communication
- Supply and demand planning
- Inventory planning
- Inbound and outbound logistics planning

Of course, the technology was merely an enabler, and to transform its supply chain operation, Avaya embarked on a long-term, phased program to standardize processes, initiate a culture change, invest in top talent, and implement a system of rigorous benchmarking and KPI tracking. By making a conscious effort to lead the enterprise into a new way of thinking, change business culture, and unify technology under a single platform, Avaya has improved inventory turns by more than 200%, reduced cash tied-up in stock by 94%, and cut its overall supply chain expenditure in half.

(a) Explain the supply chain challenge faced by Avaya in the case study.

(05 Marks)

(b) Elaborate on the role of technology as an enabler to transform Avaya supply chain.

(07 Marks)

(c) Most of the technological deployments in supply chain fail due to lack of holistic approach. Identify a way forward to address this issue with cues from the case study.

(08 Marks)



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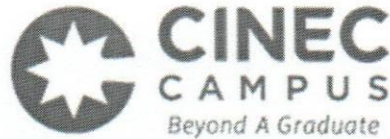
### Question 02

- (a) Explain supply chain as a network of networks (05 Marks)
- (b) What is Backward Integration in supply chain? (05 Marks)
- (c) What is Biased Forecast Error? (05 Marks)
- (d) What is the role of Bill of Materials? (05 Marks)

### Question 03

- (a) Ivan was working on his SCM assignment & didn't realize it was already 2 in the afternoon. He quickly ordered his lunch through Uber Eats.  
Elaborate on the importance of delivering 7 R's taking Ivan's lunch order as the case in point. (10 Marks)
- (b) Inaya is the newly appointed purchasing manager at AgroNext, she's really excited about the opportunity to make a significant impact on the performance of the organization.  
Explain the main goals of Inaya's job role & how she can deliver results to meet those goals in a brief report. (10 Marks)





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#### Question 04

(a) Provide your own definition for supply chain management and explain the same with an example. (03 Marks)

(b) "Single-sourcing is a risky proposition."

Do you agree with above statement? Justify your answer with appropriate examples.

(05 Marks)

(c) Elaborate on the Supplier Evaluation and Certification process using an appropriate example. (12 Marks)

#### Question 05

(a) Inaya is the newly appointed purchasing manager at AgroNext and she aims to make sustainability a top priority in their new fertilizer series for urban farming.

Identify & explain how Inaya can make sustainability a top priority through Sustainable Specification for selecting sources of supply for above scenario.

(10 Marks)

(b) Elaborate on appropriate qualitative forecasting tools that can be deployed by

Best Paints, who is a new entrant into Sri Lankan market for the upcoming

festive season in April.

(10 Marks)



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### Question 06

- (a) Sri Lanka was facing an increase in rice prices and the gov. had to intervene with controlled pricing.

Explain how a better paddy & rice inventory management can help resolve the issue using functions of inventory as your cues. (10 Marks)

- (b) Chathush is the production manager at My Cola & wants to implement lean material control practices.

Explain how Chathush can set pull scheduling to improve lean practices. (10 Marks)

### Question 07

- (a) Identify & explain the possible supply chain implications of new Corona Virus for Sri Lankan Apparel Industry with examples. (10 Marks)

- (b) After sales services are vital element in Customer Relationship Management process.

Explain how to establish a good after sales service taking the case of a mobile phone seller.

(10 Marks)



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**Question 08**

(a) "Waiting time at supermarkets have become a key factor in overall service levels opposed to traditional product availability & prices"

Do you agree with above statement? Explain with examples.

(10 Marks)

(b) Prepare the Weighted-Factor Rating Model for a new factory location for a motorbike battery manufacturer for the local market based on the below table.

Note - Only fill the given fields as it is in the table, NO need to apply the criteria for possible locations.

Item	KRA	KPI	Weightage	Ranking		
				1 - Least	2 - Average	3 - Best
1						
2						
3						

(10 Marks)

-----END OF THE QUESTION PAPER-----





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Department of Logistics & Transport  
BMgt Hons in Supply Chain Management  
Course CODE: COM552

Year 1 Semester II  
SEMESTER END EXAMINATION  
English for Business II – BSCM 1212

- This paper consists of FIVE questions on TEN (10) pages.
- Answer ALL questions.
- You may use appropriate graphs, diagrams, equation/s to prove or justify the answers.
- If you have any doubt as to the interpretation of the wording of a question, make your own decision, but clearly state it on the script.
- Write legibly.

Date: 2020.03.07

Pass mark: 40%

Time: 02 Hours

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**Section A – Business Vocabulary/ Structures**

**Question 01**

**A. Underline the most appropriate word given within brackets. (10 marks)**

- Supply chain management plays a large [game/ work/ role] in the world we live in.
- 50% of businesses, [regarding/ regardless/ with regard to] of size, close down within five years of launch.
- Most businesses are doomed to fail because of poor [strategically/ strategy/ strategic] management.
- The majority of businessmen haven't recognized the need for close [alignment/ matching/ conformity] between supply chain and general business strategies.
- Many of our best opportunities were [unleashed/ denied/ created] out of



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necessity.

(vi). The company began to look at new [options/ reasons/causes] for warehousing.

(vii). Recruitment is usually carried out by the [personal/ popular/ personnel] manager.

(viii). Tourism is the island's main [sauce/ saws/ source] of income.

(ix). The package includes [siteseeing/ sightseeing/ citeseeing] tour of London.

(x). Some [accommodation/ accommodating/ accompany] between conservation and tourism is essential.

**B. Put the words in the following sentences in the correct order. (10 marks)**

(i). delicately/ the issue/ the manager/ last week/ handled/ in office  
.....  
.....

(ii). its share/ the company/ since 2017/ heavily/ has been losing/ in the market  
.....  
.....

(iii). the whole time/ equitably/ in an organization/ should be treated/ employees  
.....  
.....

(iv). far and wide/ its service/ expanded/ a year/ the supermarket/ within  
.....  
.....

(v). employers/ English/ their organization/ of/ state/ 95%/ that/ to/ important/ is  
.....  
.....



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**Section B - English in Pragmatic/ Realistic Settings**

**Question 02**

**A. Identify the errors in the following sentences and rewrite correcting them.**  
**(10 marks)**

**Example:** You sent the memo, no? You sent the memo, didn't you?

- (i). He didn't return back yesterday .....
- (ii). Does they sell imported goods? .....
- (iii). Is she not coming tomorrow? .....
- (iv). We have met before, no? .....
- (v). You didn't lie to me, don't you? .....
- (vi). He disturb always others. ....
- (vii). Have you never been abroad?.....
- (viii). She wanted to go there, isn't she? .....
- (ix). Statistics are a useful subject. ....
- (x). last year had many accidents. ....

**B. Write the functions of the following expressions used in everyday language**

**choosing from the box. (10 marks)**

request, certainty, obligation, permission, suggestion, ability, prohibition, no  
 necessity, criticism, assumption, possibility

**Example:** People shouldn't smoke in public places. [*prohibition*]

- (i). Tourist arrivals might increase this year? .....
- (ii). You must have dialed the wrong number. ....
- (iii). Citizens must pay taxes. ....





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(iv). The company should have taken immediate measures.  
 .....

(v). You needn't have come today. ....

(vi). The staff can go out during lunch hour. ....

(vii). Shall we begin a new company? .....

(viii). She can teach handicrafts. ....

(ix). Would you type this letter for me, please? .....

(x). She must have finished the degree now. ....

### Section C - Comprehension

#### Question 03

- I. Read the following description find out how many students joined the annual excursion in 2020. (05 marks)

All the students were planning to go on an annual excursion. There were twenty-five students in the class. Nine students out of the twenty-five were girls. Either Ashen or Bhanuka would join the excursion. Neither Chrishane nor Dilshan could take part in the excursion this year. Not only Emil but also Frank were unable to join in 2020. Although George couldn't join in 2019, he participated in 2020. None of the girls got permission to go on the excursion last year. However, only three girls didn't get permission to go in 2020.

How many students went on the annual excursion in 2020? Underline the correct answer.

(a) twenty-two      (b). sixteen      (c). twenty-one      (d). seventeen

- II. Read the article below about the successful delegation of work. Underline the best word or phrase to fill each gap from (a), (b), (c) or (d). (15 marks)



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### Be a better boss by doing less work

Delegation is an essential skill for any manager who *e.g. (b)* their business to grow. But if you have spent time building up your business, it can be difficult to [1]..... control and responsibility to others. Many managers fear that delegating means employing more staff, but it is often simply a question of [2].....the workload.

The first step towards effective delegation is to work out which tasks you must do yourself. Begin by writing down everything you do over a two-week [3]..... and then analyze how you spend your time. [4]..... how much of what you do is critical to achieving your business goals and this will help you decide what you can delegate.

You can only delegate if you [5].....people with the right skills and experience to delegate to. Don't delegate to the wrong person and make sure staff understand [6].....what they have to do. If measurable objectives such as key performance [7].....or timescales are not clear, staff are left thinking they are doing a good job, [8].....actually their efforts don't fully [9]..... your expectations.

Remember, too, that the person you are delegating to must feel they are being rewarded, not punished. People are often willing to [10]..... responsibility for tasks above their grade, but there is a fine line between giving them tasks they find enjoyable and exploiting them. Ask your staff what tasks they would like to [11].....and how they feel about the responsibility involved.

Give staff the freedom to [12].....tasks in their own way. Explain what end result you [13]..... but give them choices on the means to achieve it, don't interfere. However, that doesn't mean taking no interest. It is important to [14]..... controls in place at the beginning so you can evaluate if the task is being done properly and have a weekly review to [15]..... progress.

Example:

(a). desires

(b). wants

(c). aims

(d). hopes





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- |                       |                     |                  |                |
|-----------------------|---------------------|------------------|----------------|
| 1. (a). hand over     | (b). get across     | (c). bring about | (d). make out  |
| 2. (a). recirculating | (b). redistributing | (c). recycling   | (d). rerouting |
| 3. (a). stage         | (b). term           | (c). time        | (d). period    |
| 4. (a). Regard        | (b). Believe        | (c). Reflect     | (d). Consider  |
| 5. (a). go over       | (b). take on        | (c). keep up     | (d). send out  |
| 6. (a). exactly       | (b). actually       | (c). certainly   | (d). truly     |
| 7. (a). indicators    | (b). symbols        | (c). signs       | (d). notices   |
| 8. (a). because       | (b). whereas        | (c). so          | (d). since     |
| 9. (a). complete      | (b). reach          | (c). meet        | (d). arrive    |
| 10. (a). hold         | (b). accept         | (c). agree       | (d). carry     |
| 11. (a). promise      | (b). endeavor       | (c). commit      | (d). undertake |
| 12. (a). perform      | (b). function       | (c). deliver     | (d). operate   |
| 13. (a). hope         | (b). think          | (c). expect      | (d). wish      |
| 14. (a). build        | (b). fit            | (c). let         | (d). put       |
| 15. (a). trace        | (b). monitor        | (d). enquire     | (d). detect    |

#### Section D - Presenting Information

#### Question 04

A. Study the following situations and write a meaningful sentence using the most suitable form of the given word. Look at the example. (10 marks)

Example: The unemployment rate: 13.5 % in 2017 and 3.2 % in 2018 (*dramatic*)

The unemployment rate fell *dramatically* in 2018.

(i). The annual turnover: Rs.70.51 m in 2018 and 70.54 m (stable)

.....

(ii). The liabilities: Rs.954.6 m in 2015 and Rs.295.8 m in 2019 (rapid)

.....

(iii). The lending rate: 14.63% in 2018 and 14.59 in 2019 (minimal)

.....







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.....  
 .....  
 .....  
 .....

### Section E - Business Writing

#### Question 05

A. In the following report, five phrases or sentences are missing. Write the number of the missing phrases or clauses given separately in the blanks where they should fit in. (10 marks)

#### The report on office technology

An all-staff email was sent out *e.g. (iv)* about the office equipment. Staff were also invited to a meeting at Tuesday lunchtime to discuss possible improvements to the technology.

#### **Current situation**

There is a general feeling that the current *(a)*..... as soon as possible. The internet connection is often slow and unreliable. The IT support team are helpful but *(b)*..... quickly enough.

#### **Possible improvements**

Several requests were made for new presentation software which *(c)*..... . James and Alisa agreed to research the price of other software packages and to get back to me after two weeks with some figures.

#### **Conclusion**

I recommend that *(d)*..... with smartphones and then make a decision on whether to purchase these and/or new presentation software. A further meeting with staff *(e)*..... on how and when smartphones should be used.

(i). we research the cost of providing staff





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- (ii). cannot always respond to problems
- (iii). may be needed to discuss the company policy
- (iv). *to ask staff their opinions e.g.*
- (v). computer system should be upgraded
- (vi). could be an alternative to PowerPoint

**B. As the marketing manager of a company, you researched and found out the following information for the continuous low sales of the company. Write a short report to CEO according to the given format adding any other relevant information.**

**(10 marks)**

- after the entry year, the cost of raw materials increased
- compelled to increase the price of products
- when entered the market, there were only three competitors, now nearly twelve
- staff issues
- no coordination between units
- limited sales area
- no product diversification

**Use the following format:**

Introduction - Cost of raw materials- Competitors - Recommendations

**Write at least 150 words.**

.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....







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 Course CODE: COM552

Year I Semester II

SEMESTER END EXAMINATION

Financial and Cost Accounting – BSCM1210

- This paper consists of SEVEN questions on TEN (10) pages.
- Answer FOUR questions including question 01.
- Only Non-programmable calculators are allowed.
- You may use appropriate graphs, diagrams, equation/s to prove or justify the answers.
- If you have any doubt as to the interpretation of the wording of a question, make your own decision, but clearly state it on the script.
- Write legibly.

Date: 2020.03.05

Pass mark: 40%

Time: 02 Hours

### Question 01: Compulsory

Beetle PLC is a consolidated group which is engaged in the diversified operations in the industry of logistics and transportation management.

Trail balance as at 31.03.2019 is as follows.

<u>Description</u>	<u>Debit</u>	<u>Credit</u>
Gross Revenue		10,500,000
Inventory as at 01 <sup>st</sup> April 2018	2,650,000	
Purchases	2,850,000	
Sales returns	1,175,000	
Purchase Returns		125,000
Carriage inwards	185,000	
Electricity	700,000	



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Interest income on fixed deposits		1,600,000
Dividends Income		5,900,000
Legal & Consultation charges	200,000	
Cost :		
Furniture & Fittings	2,950,000	
Motor vehicles	2,100,000	
Land	2,900,000	
Buildings	1,500,000	
Accumulated Depreciation: 01.04.2018		
Furniture & Fittings		1,100,000
Motor vehicles		725,000
Buildings		800,000
Shipping charges	845,000	
Fixed Deposit	4,000,000	
Goodwill	3,000,000	
Employee Remuneration	1,400,000	
Bank loan interest	65,000	
Debenture interest	50,000	
Repairs and maintenance	375,000	
Advertising and Promotion	580,000	
Courier charges	225,000	
Auditors remuneration	150,000	
Utility expenses	400,000	
VAT expenses	550,000	





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Insurance expenses	1,325,000	
Bank Loan @ 12 % interest rate per annum		1,650,000
Cash and cash equivalents	1,450,000	
Debentures @ 12% interest		2,500,000
Stated Capital( Rs. 10 each)		6,000,000
Accumulated Profits as at 01.04.2018		1,025,000
Trade Receivables	4,500,000	
Trade Payables		2,700,000
Other Payables		2,500,000
Commission for agents	1,000,000	
<b>Total</b>	<b><u>37,125,000</u></b>	<b><u>37,125,000</u></b>

Following are the adjustments which have not being made in the financial statements for 2018/2019 financial year.

- (1) Inventory as at 31<sup>st</sup> March 2019 amounting to Rs.400, 000.
- (2) Following expenses are accrued as at 31<sup>st</sup> March 2019.
  - Utilities Rs.275, 000
  - VAT expenses Rs.425, 000
- (3) Shipping company operates in a land which is belonging to it. This has been revalued by a professional valuer for Rs. 4,000,000.
- (4) For 2018/2019 depreciation expenses has not been charged.
  - Buildings - Cost 10 % per annum.
  - Motor vehicles- Cost 15 % per annum.



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Furniture & Fittings- Reducing balance method 18% per annum.

- (5) Last two months interest on loans and debentures not being adjusted.
- (6) There are more than 6 months outstanding debtors as at the year end amounting to Rs. 850,000. Company's policy is to write off any debtor who is exceeding 180 days of credit period.
- (7) There is no provision has been made for doubtful debts.  
 General policy of the company is to make 12% as doubtful debts from the outstanding debtor balance as at the year-end after writing off the debtors.
- (8) Corporate tax rate imposed by Inland Revenue Department (IRD) of Sri Lanka is 37 % per annum. For 2018/2019 year of assessment income tax has not been adjusted.

Required:

- (a) Prepare Income statement for the financial year 2018/2019 for publication purpose (12 Marks)
- (b) Prepare the statement of financial position as at 31<sup>st</sup> March 2019 for publication purpose. (13 Marks)

Note:

- Candidates should follow LKAS 1 / IAS 1 for the "Preparation and Presentation of Financial Statements" for the format and the preparation guidelines of financial statements for publication purpose.
- All the workings should be shown in a separate page.



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## Question 02

ZEEBA Logistic (Pvt) Ltd is one of the leading logistic company's in Sri Lanka.

Followings are the financial details available.

	<u>2018/2019</u>	<u>2017/2018</u>
	<u>(Rs'000)</u>	<u>(Rs'000)</u>
Finished Goods	480,000	345,000
Sales	3,200,000	3,400,000
Raw Material Stock	150,000	180,000
Cost of Sales	1,450,000	885,000
Operating Profit/ EBIT	1,325,000	1,250,000
Profit after Taxation	1,875,000	1,585,000
Trade Receivables	1,400,000	1,800,000
Trade Creditors	150,000	320,000
Purchases	1,750,000	1,845,000
Prepaid Expenses	265,000	225,000
Accrued Liabilities	285,000	245,000
Stated Capital ( Rs. 10 each)	3,000,000	3,000,000
Preference Share Capital ( Rs. 10 each)	1,750,000	1,650,000





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Debentures Issued	1,600,000	1,550,000
Long term bank loan	1,450,000	1,500,000
Preference share dividends	550,000	425,000
Debenture Interest expenses	365,000	145,000
Loan Interest Expense	55,000	75,000
Reserves	975,000	1,250,000
Fixed Assests	8,500,000	12,500,000
Ordinary share dividends	175,000	225,000
Market Capitalization	2,700,000	2,950,000

By using the information comments about the profitability, liquidity, efficiency, leverage and investor performance. (25 Marks)

### Question 03

Following are the details of the Freight forwarding Company.

Selling price per package	Rs.15,000
Variable production cost per package	Rs.6,500
Variable Non - production cost per package	Rs.2,500
Fixed Production cost per annum	Rs.8,000,000
Fixed Non-Production cost per annum	Rs.4,000,000
Expected Volume	700 packages



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**Required:**

- (a) Breakeven point (B.E.P) and interpretation.
- (b) Calculate Contribution sales ratio and BEP in value.
- (c) Calculate Margin of safety (MOS) in units and value.
- (d) Interpret the above results on BEP, MOS.
- (e) Graphical representation of the above result.
- (f) What are the assumptions and limitations of the BEP analysis?

(25 Marks)

**Question 04**

Fine Electronics, Inc., manufactures a number of electronic products. The following variable cost standards have been set for product K.

	Standard quantity/hours	Standard price/rate	Standard cost
Direct materials	?	\$12 per pound	\$?
Direct labor	?	?	?
Variable manufacturing overhead	?	\$4 per hour	?
Total standard cost			\$84

During the month of May, 900 direct labor hours were actually worked and 500 units of product K were manufactured. The actual cost per unit manufactured during May was \$0.28 higher than the standard cost.



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The following costs and variances information relates to the month of May:

	Materials used	Direct labor	Variable manufacturing overhead
Total standard cost for month's production	\$?	\$16,000	\$3,200
Actual costs incurred	\$20,000	\$?	\$3,240
Materials quantity variance	\$1,200U		

**Required:** Compute the followings:

- Total standard cost of materials used for actual production during May.
- Standard quantity of materials per unit of product K.
- Materials price variance for May.
- Standard direct labor rate per hour.
- Direct labor rate and efficiency variance.

(25 Marks)

### Question 05

- How to classify cost in the group based on different cost classifications based on the nature and the behavior? (06 Marks)
- What are the cost control mechanisms companies can implement to reduce cost? (07 Marks)
- What are the steps to be followed for preparation of standard costing system for an organization? (07 Marks)
- What are the reasons for the adverse cost variances? (05 Marks)





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### Question 06

- (a) Distinguish between the financial accounting and management accounting.  
(05 Marks)
- (b) What are the management accounting reports prepared by the business?  
(05 Marks)
- (c) How to do an analysis of financial statements for internal and external purposes?  
(05 Marks)
- (d) Show the effects of the following transactions on the accounting equation. (Rs.mn)
1. Started business with capital 1,00,000
  2. Bought furniture 25,000
  3. Bought goods for cash 20,000
  4. Bought goods from Ram on Credit 5,000
  5. Sold goods for cash for 15,000
  6. Sold goods to Shyam on credit 8,000
  7. Paid cash to Ram 4,000
  8. Received cash from Shyam 5,000
  9. Paid Cash into Bank 25,000
  10. Withdrawn from bank 10,000

(10 Marks)



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### Question 07

- (a) What are the main financial reports and their purpose of preparation?  
(04 Marks)
- (b) How to prepare an effective standard cost card / sheet for a business. Explain with a numerical example.  
(04 Marks)
- (c) If you are investing in a company what are the areas that you will look at the financial statements before getting your decision? Justify your answer with valid arguments.  
(04 Marks)
- (d) Distinguish between the marginal and absorption costing by using an example on your own.  
(04 Marks)
- (e) What is the significance of management accounting information to a business?  
(04 Marks)
- (f) List down key cost and management accounting information related to a manufacturing related firm.  
(05 Marks)

-----END OF THE QUESTION PAPER-----



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Year I Semester II

SEMESTER END EXAMINATION

Business Mathematics II – BSCM I2II

- This paper consists of SEVEN questions on SIX (06) pages.
- Answer FOUR questions including question 01.
- Only Non-programmable calculators are allowed.
- You may use appropriate graphs, diagrams, equation/s to prove or justify the answers.
- If you have any doubt as to the interpretation of the wording of a question, make your own decision, but clearly state it on the script.
- Write legibly.

Date: 2020.02.29

Pass mark: 40%

Time: 02 Hours

**Question 01 (Compulsory)**

(a) A company makes two products  $X$  and  $Y$  using two machines  $A$  and  $B$ . The processing time for each unit of  $X$  on machine  $A$  is 50 minutes and on machine  $B$  is 30 minutes. Each unit of  $Y$  takes 24 minutes of processing time on machine  $A$  and 33 minutes of processing time on machine  $B$ . At the beginning of the week, there are 30 units of  $X$  and 90 units of  $Y$  in stock. Available processing time for machine  $A$  is 40 hours and for  $B$  is 35 hours. The demand for the week is 75 units of  $X$  and 95 units of  $Y$ . The company policy is to maximize the combined sum of the units of  $X$  and the units of  $Y$  in stock at the end of the week. Formulate a Linear Programming model to calculate the number of units of each product to be made for the week (Don't solve this).

(08 Marks)





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(b) State whether following proposition is true or false. Justify your answer.

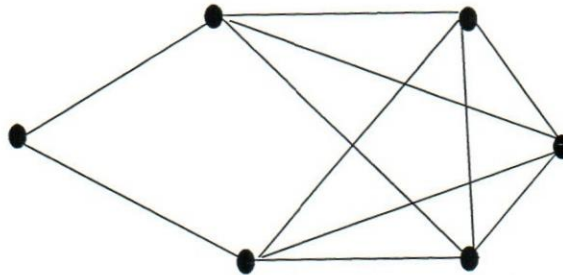
$$\forall x \in ] - 4, 3[ , 3 - x^3 > 0$$

(06 Marks)

(c) Determine the definite integral  $\int_{-10}^{10} |3x - 5| dx$ .

(06 Marks)

(d) Check the following Graph is Eulerian graph or Not? Justify your answer.



(06 Marks)

(e)  $p, q$  and  $r$  are three propositions. Draw the truth table for followings

( $\neg p$  denotes the negation of proposition ' $p$ ')

(i)  $p \wedge (q \vee r) \rightarrow (p \wedge q) \vee r$

(ii)  $(p \wedge \neg q) \rightarrow (\neg p \vee q)$

(08 Marks)

(f) Consider the Complete Graph of  $n$  vertices. Prove that Graph contains  $(n)(n-1)/2$  number of edges

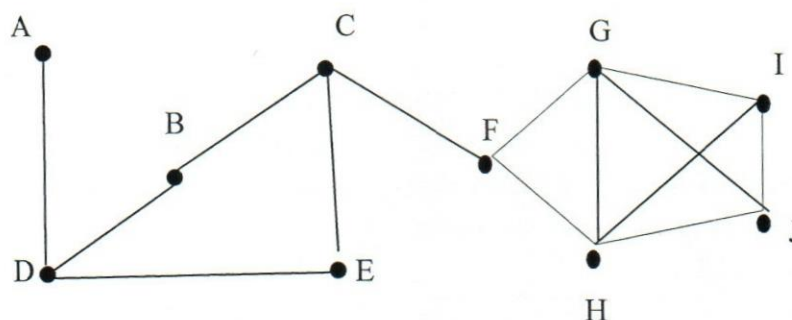
(06 Marks)



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### Question 02

(a) What is a bridge? Identify the bridges in the following graph.



(05 Marks)

(b) Draw the following graphs and check the planarity.

(i)  $K_3$

(ii)  $K_{5,4}$

(05 Marks)

(c) Find a 3-regular graph on 14 vertices, such that there is at least one 5-cycle and one 6-cycle (a  $r$ -regular graph is a graph where each vertex has degree  $r$ ).

(10 Marks)

### Question 03

A carpenter makes tables and chairs. Each table can be sold for a profit of Rs. 30 and each chair for a profit of Rs. 10. The carpenter takes 6 hours to make a table and 3 hours to make a chair and spends up to 40 hours per week, working. According to the customer demand, he should make at least three times as many chairs as tables. Tables take up 4 times as much storage space as chairs and there is space for at most 4 tables each week.



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(a) Build Linear Programming Model for this problem. (05 Marks)

(b) Use Graphical method to solve the above Linear Programming model.

(15 Marks)

### Question 04

A farmer has recently acquired 110 hectares of land. He has decided to grow Wheat and Barley on that land. Due to the quality of the sun and the region's excellent climate, the entire production of Wheat and Barley can be sold. He wants to know how to plant each variety in the 110 hectares, given the costs, net profits and labor requirements according to the data shown below:

Variety	Cost (Price/Hec)	Net Profit (Price/Hec)	Man-days/Hec
Wheat	100	50	10
Barley	200	120	30

The farmer has a budget of Rs. 10,000 and an availability of 1,200 man-days. Formulate a Linear Programming model for this problem.

(20 Marks)

### Question 05

(a) Solve the following equations for  $x$  ( $\log_e = \ln$ ).

(i)  $\log_2 [3x / (4x + 5)] = 4$

(ii)  $\frac{-2\ln(3x)}{2-\ln(3x)} = 6$  (08 Marks)

(b) Calculate the area enclosed by  $y = -3x^2 + 7$  and  $y = 0$

(06 Marks)

If the acceleration of an object at a given time " $t$ " is given by  $a(t) = t^3 + 3t^2 + 12$ , calculate the displacement of the particle from  $t = 2$  to  $t = 4$ , given the initial velocity of the particle  $v(0) = 2$ . (06 Marks)





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### Question 06

(a) Suppose a simple graph has 35 edges, 4 vertices of degree 1, and all others of degree 3. How many vertices does the graph has?

(06 Marks)

(b) State whether following proposition is true or false. Justify your answer.

$$\exists x \in ]-5, 0[ \cap \mathbb{Z}, \text{ such that } x^2(1-x) < 0$$

(08 Marks)

(c) Simplify the following expression.

$$\log(xy)^4 - 2\log(x) - \log(xy^2)$$

(06 Marks)

### Question 07

(a) Determine the following indefinite integral. ( $a$  is a constant)

$$\int (3e^a + 5 \sin a) da$$

(05 Marks)

(b) Determine the following definite integral.

$$\int_{\frac{\pi}{2}}^{\pi} t \cos t dt$$

(05 Marks)

(c) Write the following expressions as a single term.

(i)  $\log_2(80) + \log_2\left(\frac{8}{5}\right)$

(ii)  $\frac{e^{(3x+5)}}{e^{-x}} e^{5x}$



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- (d) Solve following equations for  $x$  in terms of  $y$ . (where  $t$  is constant) (06 Marks)

$$y = te^{\sqrt{3x^2-1}} \quad (04 \text{ Marks})$$

-----END OF THE QUESTION PAPER-----



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Year 1 Semester II

SEMESTER END EXAMINATION

Business Law – BSCMI309

- This paper consists of EIGHT questions on THREE (03) pages.
- Answer FIVE questions including question 01.
- You may use appropriate graphs, diagrams, equation/s to prove or justify the answers.
- If you have any doubt as to the interpretation of the wording of a question, make your own decision, but clearly state it on the script.
- Write legibly.

Date: 2020.02.27

Pass mark: 40%

Time: 03 Hours

### Question 01 - Compulsory

“Giving a proper definition for the term ‘law’ has not been an easy one. While there are several theories that have tried to give a definition for the term, there is no coherence among them.”

Do you agree with the above statement? Explain your answer by at least focusing on two theories of law which tries to explain the nature of law.

(20 Marks)

### Question 02

- (a) Briefly explain the different branches of government and their respective functions (06 Marks)
- (b) List out the sources of law (04 Marks)
- (c) Briefly explain the doctrine of precedent (10 Marks)

### Question 03

- (a) Define what is meant by International Law (05 Marks)
- (b) List out the sources of International Law as pointed out in Article 38(1) of the ICJ Statute (05 Marks)
- (c) What constitutes a State? Explain your answer (10 Marks)



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### Question 04

Answer either Part I or Part II

#### Part I

- (a) Define what is mean by a contract (04 Marks)
- (b) Differentiate between an offer and an invitation to treat (08 Marks)
- (c) Discuss the differences in a unilateral offer and a bilateral offer (08 Marks)

#### Part II

- (a) Compare and contrast the decisions in *Merritt v Merritt* [1970] EWCA Civ 6 and *Balfour v Balfour* [1919] 2 KB 571 regarding intention to create legal obligations (16 Marks)
- (b) List out the available remedies for breach of contract (04 Marks)

### Question 05

- Define what is meant by agency (04 Marks)
- List out the rights of an Agent (06 Marks)
- Explain the requirements of 'Agency by Necessity' (10 Marks)

### Question 06

- (a) Define what is meant by a Partnership (05 Marks)
- (b) Does a person sharing the profits of a partnership always become a partner of that firm? Explain your answer (10 Marks)
- (c) Discuss the ways in which a partnership could be dissolved by the court (05 Marks)

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**Question 07**

(a) Saman is planning to incorporate a limited liability company. Briefly advise him as to the procedure of incorporating a company in Sri Lanka.

(10 Marks)

(b) Discuss the duties of a Director of a company as envisaged in the Companies Act No 07 of 2007

(10 Marks)

**Question 08**

A Contract of Insurance is a unique type of contract embracing concepts of its own. Briefly explain the following regarding a Contract of Insurance. (5 Marks Each)

- (a) A Contract of Insurance
- (b) *Uberrima Fides*
- (c) Subrogation
- (d) Insurable Interest

-----END OF THE QUESTION PAPER-----

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Year 1 Semester II

SEMESTER END EXAMINATION

Business Statistics – BSCM 1308

- This paper consists of EIGHT questions on EIGHT (08) pages.
- Answer FIVE questions including question 01.
- You may use appropriate graphs, diagrams, equation/s to prove or justify the answers.
- If you have any doubt as to the interpretation of the wording of a question, make your own decision, but clearly state it on the script.
- Write legibly.

Date: 2020.02.25

Pass mark: 40%

Time: 03 Hours

**Question 01: Compulsory**

- (a) Priyanka collected wild mushrooms every day for a week. When she got home each day, she weighted them to the nearest 100 g. The weights are shown below:

500 , 700 , 400 , 300 , 900 , 700 , 700

- Write down the mode for these data.
- Calculate the mean for these data.
- Find the median for these data.

On the next day, Priyanka collected 650 g of wild mushrooms.

- Write down the effect this will have on the mean, the mode and the median

(08 Marks)

- (b) The Probability that a member of a sports club plays hockey (H) is 0.5 and the probability that the member plays cricket (C) is 0.4. The probability that the member plays both sports is 0.25., Find

- $P(H \cup C)$
- $P(H' \cap C)$
- $P(H \cup C')$



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(06 Marks)

- (c) A discrete random variable  $X$  has the probability distribution shown in this table.

$x$	0	1	2	3
$P(X=x)$	$1/8$	$1/4$	$1/2$	$1/8$

Find,

- (i)  $P(1 < X \leq 3)$
- (ii)  $P(X < 2)$
- (iii)  $P(X > 3)$

(06 Marks)

- (d) An officer is always late to the office and arrives within the grace period of fifteen minutes after the start. Let  $X$  be the time that elapses between the start and the time the officer signs in with a probability density function

$$f(x) = \begin{cases} kx^2 & 0 \leq x \leq 15 \\ 0 & \text{otherwise} \end{cases}$$

where  $k > 0$  is a constant.

- (i) Compute the value of  $k$ .
- (ii) Find the Probability that the he arrives less than 5 minutes after the start of the office.

(05 Marks)

- (e) Find the Number of arrangements that can be made by using all the letters of the word KAHATAGASDIGILIYA. Find, in how many of these arrangements the vowels are separated.

(05 Marks)

- (f) Consider the discrete random variable  $X \sim B(10, 0.7)$

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Find,

(i)  $P(X = 4)$       (ii)  $P(X \leq 6)$       (05 Marks)

(g) The mean and the standard deviation of 100 observations were calculated as 30 and 4.1 respectively. It was later found that one observation has been erroneously recorded as 40 instead of the correct value 30. Compute the correct mean and the standard deviation of the 100 observations.

(05 Marks)

### Question 02

(a) Let A, B and C be any THREE events in Sample Space S. Find the expressions for the following events.

- (i) All three events occur (01 Marks)
- (ii) At least one occurs (01 Marks)
- (iii) Only A occurs (01 Marks)
- (iv) Both A and B but C not occur (01 Marks)
- (v) At least two occur (01 Marks)
- (vi) One and no more occurs (01 Marks)
- (vii) Exactly two occur (02 Marks)

(b) Three girls Nimali, Amali, Sumali pack biscuits in factory. From a batch tattled then Nimali packs 50%, Amali 30% and Sumali 20%. The percentage that Nimali breaks some biscuits in a packet is 7% and respective percentages for Amali and Sumali are 9% and 11%. What is the probability that a packet with broken biscuits found by the checker was packed by Nimal? Who is the most probable person?

(07 Marks)

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**Question 03**

- (a) The table shows the lengths of the films in a film festival, to the nearest minute. weights of 50 employees of a Merck company represented by the following table:

Length (min)	F
$80 \leq X < 89$	4
$90 \leq X < 99$	15
$100 \leq X < 109$	20
$110 \leq X < 119$	9
$120 \leq X < 129$	2

- (i) Plot the histogram and frequency polygon. (04 Marks)  
(ii) Calculate the mean and median. (02 Marks)  
(iii) Calculate First quartiles and Third quartile (02 Marks)  
(iv) Calculate mode (02 Marks)

- (a) A and B are two events such that  $P(A) = 0.55$ ,  $P(B) = 0.4$  and  $P(A \cap B) = 0.15$ . Find,

(i)  $P(A/B)$  (ii)  $P(B/(A \cup B))$  (iii)  $P(A'/B')$

(05 Marks)





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### Question 04

Vehicles approaching a crossroad must go in one of the three directions: left, right or straight on. Observations of traffic engineers reveal that of vehicles approaching from the west: 50 % turn left, 20 % turn right and the rest go straight on. Assuming that the driver of each vehicle chooses direction independently, find the probability that of the next three vehicles, approaching the crossroad from the west,

- (a) all go straight on,
- (b) all go in the same direction,
- (c) two turns right and one turn left,
- (d) all go in different directions.

If the three consecutive vehicles, all go in the same direction, show that most of the time they all turn left.

(15 Marks)

### Question 05

- (a) An examination was held to decide the awarding of a scholarship. The weights of various subjects were different. The marks obtained by 3 candidates (out of 100 in each subject) are given below:

Subject	Weight	Students		
		A	B	C
Mathematics	4	60	57	62
Physics	3	62	61	67
Chemistry	2	55	53	60
English	1	67	77	49

Calculate the weighted Arithmetic Mean to award the scholarship.

(05 Marks)

- (b) A class of 13 girls and 12 boys. All these 25 students are subjected to a written test, and the summary of results are below.



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	Boys	Girls
Mean	31	36
Standard Deviation	6.2	4.3

Find the Compound mean and Standard deviation for all the students.

(10 Marks)

### Question 06

- (a) Let A and B be two events of a sample space  $\Omega$  with  $P(B) > 0$ . Define  $P(A/B)$ , the conditional probability of A given B

Show that  $P(A) = P(B) \cdot P(A/B) + P(B') \cdot P(A/B')$ , where  $0 < P(B) < 1$  and  $B'$  denotes the complementary event of B.

(05 Marks)

- (b) Write short notes on any **FIVE** of the following;

- (i) Types of Data
- (ii) Median
- (iii) Multiple Bar charts
- (iv) Data Collection methods
- (v) First Quartile
- (vi) Mode

(10 Marks)



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### Question 07

- (a) A Student council of 15 Students consists of 3 Science students, 5 Arts students and 7 Commerce students. It is required to select 6 students from this student council to work on a project. Find the number of different ways in which this can be done, if
- all 15 students are eligible to be selected,
  - two particular students are not permitted to work together
  - two students from each of the subject stream need to be selected.

Also ,

find the number of different ways in which a group selected under (iii) above can be seated around a circular table, if the two students from the science stream in the group are not permitted to sit next to each other.

(10 Marks)

- (b) The table below shows the quantity in hundred kgs of Wheat, Barley and Oats produce on a certain farm during the years 1988 to 1991.

Year	Wheat	Barley	Oats
1988	34	28	18
1989	28	34	18
1990	21	16	43
1991	35	23	22

- Construct a component bar chart to illustrate this data.
- Construct a multiple bar chart to illustrate this data.
- Draw the Pie-charts for 1990 and 1991.

(05 Marks)



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### Question 08

(a) A and B are two exhaustive and mutually exclusive events in S.

If  $P(A) = 3/5$ , Find  $P(B)$

A third event C in S is such that A and C are independent and  $P(C) = 1/3$ .

Calculate  $P(A \cap C)$ ,  $P(A \cup C)$ ,  $P(A' \cap C')$

Are  $A'$  and  $C'$  independent? Justify Your Answer.

(05 Marks)

(b) Find the Number of arrangements that can be made by using all the letters of the word "PROPERTIES". Find, in how many of these arrangements the vowels are separated.

(05 Marks)

(c) Let A, B, and C be mutually exclusive and exhaustive events of a sample space  $\Omega$ . If  $P(A) = 2p$ ,  $P(B) = 2p^2$  and  $P(C) = 4p - 1$ , find the value of p.

(05 Marks)

-----END OF THE QUESTION PAPER-----

Library



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Year I Semester II

REPEAT EXAMINATION

Business Law – BSCM1309

- This paper consists of EIGHT (08) questions on THREE (03) pages.
- Answer FIVE (05) questions including question 01.
- Only Non-programmable calculators are allowed.
- You may use appropriate graphs, diagrams, equation/s to prove or justify the answers.
- If you have any doubt as to the interpretation of the wording of a question, make your own decision, but clearly state it on the script.
- Write legibly.

Date: 2019.03.28

Pass mark: 40%

Time: 03 Hours

## Question 01: (Compulsory)

Supply of Petroleum Resources, especially the finished products such as Petrol and Diesel are primary concerns of the Ceylon Petroleum Corporation (CPC). Since, the country does not have proper refinery process to produce these products from crude oil after the existed refinery in the country was badly affected by terrorist attack in the past; the CPC has to expeditiously import those petroleum products at a stretch without leaving any possibility of a shortage in supply. The recent issue involving a rejected shipment that led to a huge chaos among the country's petroleum consumers where the famous MV Lady Naveska became a hot topic, brought some attention that CPC must be vigilant of the importation, maintaining of quality, and timely supply to the consumers. Considering this scenario, answer the following:





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(a) Identify the best INCOTERM that CPC could adopt in its business model with the foreign seller of petroleum products that need to be brought to Sri Lanka.

(03 Marks)

(b) State which carriage type (i.e which type of Charterparty) is most suitable in the CPC's business model, and further explain reasons for your answer. (07 Marks)

(c) In case the carrier commits any 'delay' in the delivery of cargo of petroleum due to deviation: state in what circumstance that the carrier defend itself from liability.

(05 Marks)

(d) Identify some leading five (5) terms that may be necessary to include in the Contract of Carriage of petroleum. (05 Marks)

### Question 02

State the four (4) main functions of Bill of Lading and explain them in detail.

(20 Marks)

### Question 03

"Seaworthiness of a ship / vessel is a fundamental importance in a carriage contract. It is said that a ship must be seaworthy at the commencement of a voyage." Considering this statement, answer the following:

(a) Name and explain the three main elements of Seaworthiness. (06 Marks)

(b) Briefly explain the case of *Hong Kong Fir Shipping Co. v. Kawasaki Kaisha Kaisha* and the importance of its outcome. (08 Marks)

(c) Since the 'Warranty of Seaworthiness' is considered an Innominate Term, explain what it means in your own language. (06 Marks)





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## Question 04

Explain the nature of law while giving attention to the historical developments of law. (20 Marks)

## Question 05

Explain municipal law and international law with examples. (20 Marks)

## Question 06

The three essential elements of a contract are offer, acceptance and consideration. Explain these elements with case law. (20 marks)

## Question 07

A contract comprises of express and implied terms. Explain these two categories of terms with examples and if necessary case law. (20 marks)

## Question 08

- (a) Define and explain the following:
- (i) Capacity of the parties in regard to the Principal, 3<sup>rd</sup> Party and the agent. Include any exceptions. (03 marks)
  - (ii) Agent (02 Marks)
- (b) State the five Methods by which an agency can be created (05 Marks)
- (c) State and explain the methods by which an agency can be terminated (06 Marks)
- (d) State and explain the rights of an agent (04 Marks)

-----END OF THE QUESTION PAPER-----

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02



## Year I Semester II REPEAT EXAMINATION Business Mathematics II – BSCM12II

- This paper consists of SEVEN (07) questions on SIX (06) pages.
- Answer FOUR (04) questions including question 01.
- Calculators are NOT allowed.
- You may use appropriate graphs, diagrams, equation/s to prove or justify the answers.
- If you have any doubt as to the interpretation of the wording of a question, make your own decision, but clearly state it on the script.
- Write legibly.

Date: 2019.03.27

Pass mark: 40%

Time: 02 Hours

### Question 01 - Compulsory

(a) If  $A = \begin{pmatrix} a & b \\ c & d \end{pmatrix}$  is skew symmetric, show that  $a=d=0$ . (05 Marks)

(b) Use integration by parts

(i)  $\int \frac{x}{e^x} dx$  (05 Marks)

(c) Differentiate followings

(i)  $y = \sin 5x + x \cos x$  (02 Marks)

(ii)  $y = e^{3x} * x^2$  (03 Marks)

(d) Use chain rule and differentiate followings

(i)  $y = \sin(x^5 + 8)$  (05 Marks)

(ii)  $y = 3 e^{\sin x}$  (05 Marks)





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## Question 02

(a) Differentiate following functions

(14 Marks)

(i)  $y = 3 \sin x + 3 \ln x - 5x$

(ii)  $y = \frac{2x^{-3}}{3} + \frac{e^{8x}}{2}$

(iii)  $y = \sqrt{x} + \ln(\sqrt{x})$  Hint: Use the laws of logarithms

(iv)  $y = (x^3 + 5x^2 - 9)^{10}$

(v)  $y = \frac{\cos 2x}{2 \sin x + 1}$

(vi)  $y = \frac{5e^x}{x \sin x}$

(vii)  $y = \ln(5 + 6 \sin x)$

(b) Find second order derivative and third order derivative of the following functions

(11 Marks)

(i)  $2x^3 - \sin x + e^x$

(ii)  $\sin^2 x$

## Question 03

(a) Integrate followings using a suitable substitution

(25 Marks)

(i)  $\int (3x + 1)^{2.5} dx$

(ii)  $\int x * \sin x^2 dx$





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(iii)  $\int \sin x * \sqrt{\cos x} dx$

(iv)  $\int \cos x * \sqrt{\sin x} dx$

(v)  $\int \frac{e^{\sqrt{x}}}{\sqrt{x}} dx$

## Question 04

Consider matrices given below

$$A = \begin{pmatrix} 1 & 1 \\ 3 & 4 \end{pmatrix}$$

$$B = \begin{pmatrix} 2 \\ 1 \end{pmatrix}$$

$$C = \begin{pmatrix} -7 & 1 \\ 0 & 4 \end{pmatrix}$$

$$D = (3 \ 2 \ 1) \text{ and}$$

$$E = \begin{pmatrix} 2 & 3 & 4 \\ 1 & 2 & -1 \end{pmatrix}$$

(a) Find;

(21 Marks)

(i) C-A

(ii) AB

(iii) CA

(iv) AC

(v) BD

(vi) BE

(vii) AE



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(b) Find  $7C - 2A + A^2$

(04 Marks)

## Question 05

(a) Find  $dy/dx$  for followings;

(08 Marks)

(i)  $x = \cos 2t$

$y = 3t$

(ii)  $x = (1+t)^3$

$y = 1 + t^3$

(iii)  $x = \sin t$

$y = 3e^t$

(iv)  $x = t^3 + t^2 + t$

$y = \sin 3t$

(b) for below functions find  $\frac{\partial z}{\partial x}$  and  $\frac{\partial z}{\partial y}$

(12 Marks)

(i)  $z = x^3 + 2x^2y - 4xy^2 + 2y^3$

(ii)  $z = 4 \cos(4x - 5y)$

(iii)  $z = x \sin xy - y^2 \cos 2y$

(iv)  $z = \frac{\sin 2y}{x}$

(c) Given  $z = 2x^2y - \sqrt{x} * y$

(i) Find  $\frac{\partial z}{\partial y}$

(02 Marks)

(ii) Find  $\frac{\partial z}{\partial x}$

(02 Marks)

(iii) Evaluate them when  $x = 2$  and  $y = 1$ .

(01 Mark)



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02

## Question 06

(a) If  $A = \begin{pmatrix} a & b \\ c & d \end{pmatrix}$  and  $B = \begin{pmatrix} e & f \\ g & h \end{pmatrix}$

Show that  $|AB| = |A| |B|$  (06 Marks)

(b) If  $A = \begin{pmatrix} 1 & 1 \\ 0 & 3 \end{pmatrix}$  and  $B = \begin{pmatrix} 2 & 1 \\ -1 & 3 \end{pmatrix}$  Show that,  $(AB)^{-1} = B^{-1} A^{-1}$  (06 Marks)

(c) If  $A = \begin{pmatrix} a & b \\ c & d \end{pmatrix}$  and 'p' is a scalar constant, show that the inverse of matrix

$$k A = \frac{1}{k} A^{-1} \quad (07 \text{ Marks})$$

(d) Consider matrix M below

$$M = \begin{pmatrix} \cos 2x & -\sin 2x & 0 \\ \sin 2x & \cos 2x & 0 \\ 0 & 0 & 1 \end{pmatrix}$$

If M is orthogonal, Find  $M^{-1}$  (06 Marks)

## Question 07

(a) For following matrices find  $\text{Adj}(A)$ ,  $|A|$  and  $A^{-1}$  if exist (09 Marks)

(i)  $A = \begin{pmatrix} 10 & -5 & -4 \\ -5 & 10 & -3 \\ -4 & -3 & 8 \end{pmatrix}$

(ii)  $A = \begin{pmatrix} 3 & 5 & 1 \\ 2 & 5 & 5 \\ -1 & 7 & 0 \end{pmatrix}$





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$$(iii) A = \begin{pmatrix} 2 & -3 & 1 \\ 2 & -1 & 1 \\ 2 & -2 & -1 \end{pmatrix}$$

(b) Solve below simultaneous equations using matrix knowledge.

(i)  $8x + 3y = 59$  and  $-2x + y = -13$  (05 Marks)

(ii)  $4x + 4y = 20$  and  $x + 3y = 11$  (05 Marks)

(iii)  $4x + y + 3z = 20$ ,  $2x - y + 4z = 20$  and  $y + 5z = 20$  (06 Marks)

-----END OF THE QUESTION PAPER-----



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04

Year I Semester II  
REPEAT EXAMINATION  
Macroeconomics – BSCMI213



- This paper consists of SEVEN (07) questions on SIX (06) pages.
- Answer FOUR (04) questions including question 01.
- Only Non-programmable calculators are allowed.
- You may use appropriate graphs, diagrams, equation/s to prove or justify the answers.
- If you have any doubt as to the interpretation of the wording of a question, make your own decision, but clearly state it on the script.
- Write legibly.

Date: 2019.03.27

Pass mark: 40%

Time: 02 Hours

**Question 01: (Compulsory)**

- (a) "Macroeconomics is a branch of the economics that studies how the aggregate economy behaves" Explain the Statement. (04 Marks)
- (b) Briefly explain the terms Economic growth and Economic Development of a country. (04 Marks)
- (c) Briefly explain the positive impact of economic growth to the Logistics and Transport Industry. (04 Marks)
- (d) Briefly explain the terms of **Recession** and the **Recovery** of Economic Cycle. (04 Marks)
- (e) Briefly Explain 02 Sector Model in Closed Economy. (04 Marks)
- (f) Identify the trend of Economic Growth in Sri Lanka. (05 Marks)  
(Use the data of 2016 and 2017)



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## Question 02

(a) The national data details were shown below of a hypothetical economy.

Description	Value
Tax	100
Subsidies	75
Manufacture of Other Non-metallic Mineral Products	80
Electricity, Gas, Steam and Air Conditioning Supply	45
Mining and Quarrying	50
Animal Production	40
Construction	80
Private Services	60
Government Services	110
Manufacturing and Quarrying	270
Agriculture, Livestock and Forestry	320
Hotels and Restaurants	50
Transport and Communication	50
Factor Income from Abroad	90
Electricity, Gas and Water	80
Human Health Activities, Residential Care and Social Work Activities	20
Factor spending for Abroad	60
Banking, Insurance and Real Estate	20
Depreciation	65

You are required to calculate,





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- (i) Sum of value added by Secondary Sector.
- (ii) Gross Domestic Production
- (iii) Net Domestic Production
- (iv) Net National Production
- (v) GDP at Market Prices

(04 Marks each)

- (b) Briefly Explain the term of Gross Domestic Production including the sector classification. (05 Marks)

## Question 03

- (a) Assume a hypothetical economy price index, Base Year is 2012. Basket of goods costs is USD 1,600 in year 2012. The same basket cost is USD 1,850 in 2015. Calculate the consumer price index and interpret the results. (05 Marks)
- (b) Cost Push inflation may be caused by "Government Regulation and Taxation" explain the statement with the aid of a diagram. (05 Marks)
- (c) Briefly explain the term of "Seasonal Unemployment" with the aid of an example. (05 Marks)
- (d) Even low inflation rate can pose a threat to new investments. Briefly explain the statement. (05 Marks)
- (e) Illustrate two main causes of demand-pull inflation with the use of graphs (05 Marks)

## Question 04

- (a) Briefly explain the Cost of Unemployment of an economy. (04 Marks)
- (b) "Voluntary Unemployment is found in many developed countries" Explain the term with necessary example. (04 Marks)
- (c) Briefly explain the effects of increasing minimum wage in the logistics and distribution sector. (05 Marks)



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- (d) Give your opinion and forecast the Job opportunities in Research and Development sector in Logistics Industry (05 Marks)
- (e) Discuss the Trend and Nature of Unemployment in Sri Lanka according to the Sri Lankan recent labour force survey (07 Marks)

## Question 05

- (a) Briefly explain the evolution of money in the economic system (05 Marks)
- (b) Briefly explain the term of Narrow Money and Broad Money. (05 Marks)
- (c) Describe the main functions of a Commercial Bank (05 Marks)
- (d) Briefly explain the term of "Time Saving Deposit Held by Public" (05 Marks)
- (e) Briefly explain 02 Financial Instruments in the equity market (05 Marks)

## Question 06

- (a) Consider the following information relating to a closed economy,

Autonomous Consumption	= Rs: 600
Marginal Propensity to Consume out of Disposable Income	= 0.85
Lump Sum Tax	= 200
Government Transfers to Households	= Rs: 25
Direct Tax Rate	= Rs: 20% of Factor Income
Private Investment	= Rs: 100
Government Expenditure	=Rs: 100

Using the above information, Calculate the following,

- (i) Equilibrium Aggregate Income (Y)

$$Y = \frac{1}{(1 - C_1 + C_1t)} (C_0 + C_1(TR - T) + I + G) \quad (07 \text{ Marks})$$





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(ii) Briefly explain the term of "Marginal Propensity to Save" (02 Marks)

(b) Imagine an economy defined by the following:

$$C = 140 + 0.9 (Y_d).$$

This is the consumption function where 140 is autonomous consumption, 0.9 is the marginal propensity to consume, and  $Y_d$  is disposable (i.e. after tax income).

$Y_d = Y - T$ , where  $Y$  is national income (or GDP) and  $T = \text{Tax Revenues} = 0.3Y$ ; note that 0.3 is the average income tax rate.

$$I = \text{Investment} = 400$$

$$G = \text{Government spending} = 800$$

$$X = \text{Exports} = 600$$

$$M = \text{Imports} = 0.15Y$$

- (i) Determine the aggregate expenditure function. Using the numbers from above and solve  $Y$ .
- (ii) Assume that, because of changes in the relative prices of domestic and foreign goods, the marginal propensity to import falls to 0.1. Calculate the equilibrium output when the marginal propensity to import is changed to 0.10.
- (iii) If the Keynesian consumption function is  $C = 10 + 0.8 Y_d$  then, if disposable income is \$ 1000, What is amount of total consumption ?
- (iv) If the Keynesian consumption function is  $C = 110 + 0.75 Y_d$  then, when disposable income is £1000, what is the Average Propensity to Consume? (12 Marks)

(c) Briefly explain the term of Autonomous Consumption and Marginal Propensity to Consumption. (04 Marks)





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## Question 07

**Write short notes for any FIVE (05) of the following**

- (a) Economic Growth and Economic Development
- (b)  $M_1$  and  $M_2$
- (c) Capital Market and Money Market
- (d) Human Development Index and Physical Quality Life Index
- (e) Millennium Development Goals and Sustainable Development Goals
- (f) Real Interest Rate and Nominal Interest Rate
- (g) Leakages and Injections
- (h) Marginal Propensity to Consume and Marginal Propensity to Save
- (i) Cost Push Inflation
- (j) Consumer Price Index

(05 Marks Each)

-----END OF THE QUESTION PAPER-----

Library



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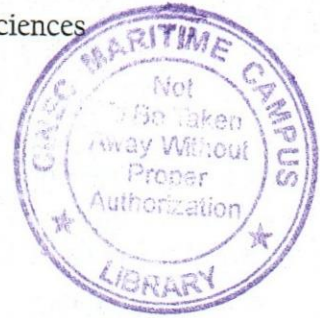
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Year I Semester II

REPEAT EXAMINATION

Business Statistics – BSCM1308



- This paper consists of EIGHT (08) questions on NINE (09) pages.
- Answer FIVE (05) questions including question 01.
- Only Non-programmable calculators are allowed.
- You may use appropriate graphs, diagrams, equation/s to prove or justify the answers.
- If you have any doubt as to the interpretation of the wording of a question, make your own decision, but clearly state it on the script.
- Write legibly.
- Supporting documents are attached.

Date: 2019.03.29

Pass mark: 40%

Time: 03 Hours

Question 01 and Question 02 are based on the CASE STUDY given below.

### CASE STUDY - Uber Eats



Uber Eats is an American online food ordering and delivery platform launched by Uber in 2014 and based in San Francisco, California.





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The company made its foray into food delivery in August, 2014 with the launch of the UberFRESH service in Santa Monica, California. In 2015, the platform was renamed to UberEATS and the ordering software was released as its own application, separate from their app for Uber rides. At the same time, they expanded the platform to include Barcelona, Chicago, and New York City. UberEATS continued to expand throughout the second half of 2015. As of 2018, the service is at "...a USD 6 billion bookings run rate, growing over 200 percent." UberEATS is now located in 250 cities with over 300 more locations needed to be equal to Uber.

Users can read the menu, order, and pay for food from participating restaurants using their device using an application on the iOS or Android platforms or through a web browser. Users additionally have the option of giving a tip for delivery. The app detects the user's location and displays restaurants open at the time separately from those that are closed. Payment is charged to a credit/debit card on file with Uber. Meals are delivered by couriers using cars, bikes, or on foot. Upon ordering, the customer is notified of the total price combining delivery fee and meal price. Customers can track the delivery status after the order is placed.

## Question 01: COMPULSARY

Uber eats wants to measure the customer satisfaction of their service in Sri Lanka.

- (a) Write Two demographic variables useful for the above study (02 Marks)
- (b) Identify the measurement scales of the above listed variables in part (a) (02 Marks)
- (c) Write THREE variables related to the customer satisfaction of Uber Eats (03 Marks)
- (d) Identify the measurement scales of the above listed variables in part (c) (03 Marks)
- (e) Suggest and explain a suitable data collection method for the above study. (06 Marks)
- (f) If final report of this study has to be finalized on 31<sup>st</sup> May 2019, prepare a time plan for the above study. (04 Marks)





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## Question 02

Suggest the best possible graph to illustrate below cases, indicating the important aspects that should be considered when creating the graph. (Constructing exact measurements is not required, but a sketch can be drawn.) (4\*5 Marks)

- (a) Uber Eats wants to denote distribution of its customer base by gender
- (b) Uber Eats wants to show overall satisfaction of its customers
- (c) Uber Eats interested in showing distribution of total amount of orders placed by its customers during data collection period
- (d) Uber Eats is interested in showing distribution of the time taken to deliver the orders to its customers
- (e) Uber Eats wants to show the distribution of customer satisfaction with the vehicle type used to deliver the foods

## Question 03

- (a) Consider the stem and leaf plot given below and answer following questions.

STEM	
0	1 1 2 3 3 4 4 6 7 8 8 9
1	4 4 7
2	1 4 4 7 8
3	3 6 6 7 8 9
4	2 6 9
5	0 0 2 7 7
6	1
7	0 1 3 8 9
8	2 7 8
9	3 6 9
10	9
11	5





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- (i) Comment on the symmetry of the distribution (03 Marks)
  - (ii) State, with reasons, which measure of central tendency you consider more appropriate for summarizing these data (04 Marks)
  - (iii) State another graphical representation which can be used to describe the data set. (03 Marks)
- 
- (b) Write advantages and disadvantages of mean over median (03 Marks)
  - (c) What is meant by relative and absolute measures of dispersion (03 Marks)
  - (d) Write 03 applications of range (04 Marks)

## Question 04

- (a) A quality control inspector of a soft-drink manufacturing company tested the volume of nine samples of generated by three bottle filling machines of its hourly production. Volume of soft-drink in each bottle for Three machines are as follows.

### Machine 1:

301    291    301    294    296    298    293    292    290

### Machine 2:

301    300    302    302    298    299    299    302    300

### Machine 3:

291    288    292    285    290    290    287    295    295

- (i) Calculate mean, median, range and standard deviation for each machine (12 Marks)
- (ii) Based on the above measures, discuss the shape of the distribution of the volume of soft-drink for each machine. (05 Marks)
- (iii) Suggest which bottle filling machine is more accurate. Justify your answer (03 Marks)





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## Question 05

(a) Consider the following cases and decide whether they are binomial distribution or not (10 Marks)

- (i) Transport service provider who has 06 trucks in his fleet check the availability of break problems in his fleet
- (ii) Medical Officer selects 100 children from Galle district and categorize them as Non-Anemic, Mild Anemic, Moderate anemic and Severe Anemic according to the haemoglobin level in their blood
- (iii) Section head of a school is interested in observing 50 students in securing an "A" grade pass for Mathematics in their Ordinary Level examination.
- (iv) Experiment where three marbles are drawn without replacement from a bag containing 20 red and 40 blue marbles, and the number of red marbles drawn is recorded.
- (v) Fair die is rolled 10 times and the number of "6"s is recorded.

(b) A mobile phone manufacturer claims that defective rate of his production is 2%. These mobile phones are packed in boxes of 10. Retailer who ordered 20 such boxes, randomly selects a one box.

- (i) What is the probability that exactly one of them are defective (02 Marks)
- (ii) What is probability that exactly none of them are defective (03 Marks)
- (iii) Find the average number of defectives (01 Marks)
- (iv) What is the variance (01 Marks)
- (v) If a selected box consists of more than one defective the lot will be rejected by the retailer. Find the probability that lot will be accepted. (03 Marks)





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Course CODE: COM552

## Question 06

(a) A new automated production process has had an average of 1.5 breakdowns per day. It is distributed as Poisson distribution. Because of the cost associated with a breakdown, management is concerned about the possibility of having three or more breakdowns during a day. Assume that breakdowns occur randomly that the probability of a breakdown is the same for any two time intervals of equal length, and that breakdowns in one period are independent of breakdowns in other periods.

- (i) Write the probability density function of the Poisson distribution  
(02 Marks)
- (ii) What are the parameters of the above distribution  
(02 Marks)
- (iii) What is the probability of having three or more breakdowns during a day?  
(04 Marks)
- (iv) What is the probability of having at most FIVE breakdowns in a day?  
(04 Marks)
- (v) What is probability of having no breakdowns during a day?  
(04 Marks)
- (vi) What is the probability of having at most 15 breakdowns in a week  
(Assume that firm operates FIVE days a week.)  
(04 Marks)





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02

## Question 07

- (a) A gas supplier maintains a team of engineers who are available to deal with leaks reported by customers. Most reported leaks can be dealt with quickly but some require a long time. The time taken to deal with a reported leak (excluding traveling time) is normally distributed with mean 65 minutes and standard deviation of 60 minutes.

Find the probability that,

- (i) It will take more than 185 minutes to deal with a reported leak (03 Marks)  
(ii) It will take less than 70 minutes to deal with a reported leak (03 Marks)  
(iii) It will take 50 minutes to 125 minutes to deal with a reported leak. (04 Marks)  
(iv) If there exist 50 customer calls regarding leaks, how many of these reported leaks can be completed less than 70 minutes. (Hint: use the answer calculated in part c) (05 Marks)
- (b) Discuss the advantages and disadvantages of median over the mean (03 Marks)
- (c) Write TWO applications of Range as a measure of dispersion (02 Marks)

## Question 08

- (a) Four married couples have bought 08 seats in the same row for a cinema. In how many different ways can they be seated;
- (i) With no restrictions (02 Marks)  
(ii) If each couple is to sit together (03 Marks)  
(iii) If all men sit together to the right of all the women (03 Marks)
- (b) In a high school graduate class of 500 students, it is found that 210 smoke, 258 drink alcoholic beverages, 216 eat between meals, 122 smoke and drink alcoholic beverages, 83 eat between meals and drink alcoholic beverages, 97 smoke and eat between meals, and 52 engage in all three of these bad health practices. If a





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member of this senior class is selected at random, find the probability that the student,

- (i) Smokes but does not drink alcoholic beverages (02 Marks)
  - (ii) Eats between meals and drinks alcoholic beverages but does not smoke (02 Marks)
  - (iii) Neither smokes nor eats between meals (02 Marks)
- (c) If A, B and C are any three events find expressions and Venn representations for the below events. (2\*3 Marks)
- (i) None occurs
  - (ii) Only one event occurs
  - (iii) Not more than two occurs.

-----END OF THE QUESTION PAPER-----





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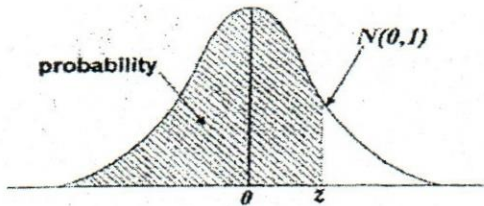
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02

## The Standardised Normal Distribution Table



The distribution tabulated is that of the normal distribution with mean zero and standard deviation 1. For each value of  $Z$ , the standardized normal deviate, (the proportion  $P$ , of the distribution less than  $Z$ ) is given. For a normal distribution with mean  $\mu$  and variance  $\sigma^2$  the proportion of the distribution less than some particular value  $X$  is obtained by calculating  $Z = (X - \mu) / \sigma$  and reading the proportion corresponding to this value of  $Z$ .

Z	P	Z	P	Z	P
-4.00	0.00003	-1.00	0.1587	1.05	0.8531
-3.50	0.00023	-0.95	0.1711	1.10	0.8643
-3.00	0.0014	-0.90	0.1841	1.15	0.8749
-2.95	0.0016	-0.85	0.1977	1.20	0.8849
-2.90	0.0019	-0.80	0.2119	1.25	0.8944
-2.85	0.0022	-0.75	0.2266	1.30	0.9032
-2.80	0.0026	-0.70	0.2420	1.35	0.9115
-2.75	0.0030	-0.65	0.2578	1.40	0.9192
-2.70	0.0035	-0.60	0.2743	1.45	0.9265
-2.65	0.0040	-0.55	0.2912	1.50	0.9332
-2.60	0.0047	-0.50	0.3085	1.55	0.9394
-2.55	0.0054	-0.45	0.3264	1.60	0.9452
-2.50	0.0062	-0.40	0.3446	1.65	0.9505
-2.45	0.0071	-0.35	0.3632	1.70	0.9554
-2.40	0.0082	-0.30	0.3821	1.75	0.9599
-2.35	0.0094	-0.25	0.4013	1.80	0.9641
-2.30	0.0107	-0.20	0.4207	1.85	0.9678
-2.25	0.0122	-0.15	0.4404	1.90	0.9713
-2.20	0.0139	-0.10	0.4602	1.95	0.9744
-2.15	0.0158	-0.05	0.4801	2.00	0.9772
-2.10	0.0179	0.00	0.5000	2.05	0.9798
-2.05	0.0202	0.05	0.5199	2.10	0.9821
-2.00	0.0228	0.10	0.5398	2.15	0.9842
-1.95	0.0256	0.15	0.5596	2.20	0.9861
-1.90	0.0287	0.20	0.5793	2.25	0.9878
-1.85	0.0322	0.25	0.5987	2.30	0.9893
-1.80	0.0359	0.30	0.6179	2.35	0.9906
-1.75	0.0401	0.35	0.6368	2.40	0.9918
-1.70	0.0446	0.40	0.6554	2.45	0.9929
-1.65	0.0495	0.45	0.6736	2.50	0.9938
-1.60	0.0548	0.50	0.6915	2.55	0.9946
-1.55	0.0606	0.55	0.7088	2.60	0.9953
-1.50	0.0668	0.60	0.7257	2.65	0.9960
-1.45	0.0735	0.65	0.7422	2.70	0.9965
-1.40	0.0808	0.70	0.7580	2.75	0.9970
-1.35	0.0885	0.75	0.7734	2.80	0.9974
-1.30	0.0968	0.80	0.7881	2.85	0.9978
-1.25	0.1056	0.85	0.8023	2.90	0.9981
-1.20	0.1151	0.90	0.8159	2.95	0.9984
-1.15	0.1251	0.95	0.8289	3.00	0.9986
-1.10	0.1357	1.00	0.8413	3.50	0.99977
-1.05	0.1469			4.00	0.99997



Librams

05



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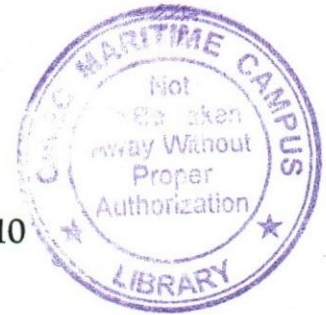
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Department of Logistics & Transport

B.Mgt. (Hons) in Supply Chain Management

Course CODE: COM552



## Year I Semester II REPEAT EXAMINATION Financial and Cost Accounting – BSCMI210

- This paper consists of SEVEN (07) questions on NINE (09) pages.
- Answer FOUR (04) questions including question 01.
- Only Non-programmable calculators are allowed.
- You may use appropriate graphs, diagrams, equation/s to prove or justify the answers.
- If you have any doubt as to the interpretation of the wording of a question, make your own decision, but clearly state it on the script.
- Write legibly.
- Supporting documents are attached.

Date: 2019.03.26

Pass mark: 40%

Time: 02 Hours

### Question 01: (Compulsory)

USE THE GIVEN FORMAT TO ANSWER THE QUESTION

WM (PLC) is a company, which engages in clothing industry in Sri Lanka. Its main business operations are buying fashionable clothing from well reputed suppliers and selling in the market. Following trail balance is given by the department of finance as at 31<sup>st</sup> March 2018

Trail balance as at 31.03.2018

Description	Debit	Credit
	(RS 000')	(RS 000')
Purchases	241,100	
Sales		385,000
Carriage Inwards	500	



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Trade Payables		32,000
Electricity Expenses	7,000	
Insurance Expenses	2,500	
Return Inwards	2,150	
Return Outwards		1,100
Bank Loan (@ 8% Interest)		15,000
Rent Expenses	1,500	
Stated Capital (RS. 10 each)		222,750
Cash & Bank	24,000	
<b>Property Plant &amp; Equipment at cost (As at 01.04.2017)</b>		
Land	200,000	
Buildings	100,000	
Machinery	80,000	
Inventory as at 01st of April 2017	26,000	
Auditors Remuneration	1,000	
distribution and Transportation costs	1,000	
Trade Receivables	25,000	
Salaries and Wages	8,200	
Repair and Maintenance	2,100	
Rent Income		1000
Discounts received		800





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Advertising expenditure	600	
<b>Accumulated Depreciation of PPE as at 01st of April 2017</b>		
Buildings		25,000
Machinery		40,000
<b>Total</b>	<b>722,650</b>	<b>722,650</b>

Following are the adjustments which should be made in the financial statements for 2017/ 2018 financial year.

- (i) Inventory as at 31/03/2018 amounting to RS 30 Million
- (ii) Following expenses are accrued as at 31<sup>st</sup> March 2018  
Advertising expenses RS 150, 000  
Distribution and Transportation expenses RS 210,000
- (iii) Following expenses are paid in advance as at 31<sup>st</sup> March 2018  
Insurance expenses RS 120,000  
Rent Expenses RS 200,000
- (iv) A Bank loan has been taken at 8% interest. But still the interest expenses have not been paid
- (v) For 2016 / 2017 depreciation expenses should be charged on cost as follows
  - Buildings - 5 % per annum.
  - Machinery- 10% per annum
- (vi) Bad debt should be 10% from the debtors
- (vii) The Land has been revalued as at 01<sup>st</sup> of January 2018 to RS 115 Million



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(viii) Corporate tax rate imposed by Inland Revenue Department (IRD) for the year 2015 / 2016 is 20 % per annum.

## Required:

- (a) Prepare Income statement for the financial year 2017/2018 (15 Marks)  
(b) Prepare the Statement of Financial Position as at 31<sup>st</sup> March 2018. (10 Marks)

*Note:* Candidates should follow LKAS 01 / IFRS 01 / IAS 01 for the "Preparation & Presentation of Financial Statements"

## Question No. 02

Based on the financial statements you have prepared for WM PLC (Question No. 01),

- (i) Calculate the following ratios for 2017/2018 Financial year. (Refer Table 2.01)  
(ii) Give your recommendations on company performance, by comparing the calculated ratios with 2016/2017 years

Table 2.01

Ratio	Ratios for 2017/2018 years	Ratios for 2016/2017 year
Gross Profit Margin (%)	----	20.12%
Net profit Margin (%)	----	19.5%
Return on Assets	----	18.67%
Return on Equity	----	25.11%
Current Ratio	----	2
Debt to Total Assets ratio	----	25%
Debt to Equity Ratio	----	33.33%
Earnings Per share (RS)	----	2.5

(25 Marks)





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### Question 03

"Toyota Motor Corporation is an innovative world leader in sustainable business practices and because of this, the company is always seeking out ways of improving on already established best practices methods. In this instance the Toyota Motor Corporation has adopted an accountability method known as "Environmental accounting". These measures assure the public that a fiduciary commitment will be embraced by Toyota through activities that allocate resources and man power efficiently while insuring the public that the cost management principle will be upheld". (Cortez & Penacerrada, 2010, p.118)

- (a) "Environmental concern, Corporate Social Responsibility activities (CSR) are nowadays have been deeply touched with Accounting". Explain the importance of Environmental accounting and also "CSR", to be disclosed in the Annual reports of organizations" (10 Marks)
- (b) Clearly Explain the main purposes of accounting (10 Marks)
- (c) "Accounting Principles are a common set of accounting rules and standards that indicates how financial statements are prepared". Clearly explain few important accounting principles. (05 Marks)

### Question 04

Ms. Lakmali started a business engaged in providing consultancy services for newly startup businesses on 01<sup>st</sup> of January 2018. The opening balance of Capital is RS 300,000. Liabilities are RS 200,000 and the assets are RS 500,000

Following transactions were occurred during the month of January 2018

02<sup>nd</sup> Jan - Provided a consultancy service for EM (Pvt) ltd and charged RS 25,000

03<sup>rd</sup> Jan - designed a new business Plan for JK ltd, for a fee of RS 40,000. JK agreed to pay the amount on 25<sup>th</sup> January





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- 04<sup>th</sup> Jan - Purchased a new software for designing purposes, worth RS 20,000 on cash  
05<sup>th</sup> Jan - Purchased furniture from Lakdiva furniture PLC, for decorating front office worth RS 15,000, on credit  
06<sup>th</sup> Jan - Lakmali has taken RS 5,000 for her personnel use  
09<sup>th</sup> Jan - Issued a cheque for Lakdiva PLC for the purpose of paying for furniture purchased  
10<sup>th</sup> Jan - Invested RS 30,000 worth profits of the business for opening a new branch in Colombo  
12<sup>th</sup> Jan - Provided RS 35,000 worth consultancy service on financing methods to Mr. Ajith on cash  
21<sup>st</sup> Jan - paid salaries worth RS 15,000  
22<sup>nd</sup> Jan - Received Interest income received RS 3,000  
25<sup>th</sup> Jan - received cash from JK Ltd for the service provided.

Required,

- (a) Put the transactions in to basic Accounting Equation. And briefly explain the reasons to change the equity value at the end of the month (15 Marks)  
(b) Prepare an Income statement for the month ended 31<sup>st</sup> Jan 2018 (05 Marks)  
(c) Prepare a Statement of Financial Position as at 31<sup>st</sup> Jan 2018 (05 Marks)

## Question 05

Sinhagiri (Pvt) Ltd is one of the famous restaurants located in Dambulla Sri Lanka. According to the customer perception, the restaurant is considered as a very good place for them to have meals and stay. Following information are related to restaurant's annual sales revenue and costs

Table 3.01

	Value in LKR
Sales Revenue	10,000,000
Fixed Costs	4,500,000
Variable Costs	2,500,000



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Restaurant is normally charging RS 1000 per meal.

- (i) Define the term "contribution" (03 Marks)
- (ii) How many meals should the restaurant need to sell normally to have its breakeven. (05 Marks)
- (iii) Currently, what is the margin of safety that has been achieved by the restaurant (Calculate In units as well as in Rupees) (06 Marks)
- (iv) If Restaurant needs to earn a Target profit of RS 3,500,000 how many meals should be sold by them. (06 Marks)
- (v) Calculate the Net profit of the restaurant if the number of meals is going to be increased to 12,500 units (Assume variable costs will also be changed according to that.) (05 Marks)

## Question 06

- (a) Explain the importance of Activity Based Costing (ABC) system as an overhead allocation system for decision making (05 Marks)
- (b) PQR Company makes two models of antitheft devices. The portable model is relatively small and is primarily for use in automobiles. The standard model is much larger and is designed for houses and buildings.  
PQR has conducted a special study to determine if an Activity Based Costing (ABC) would be beneficial in determining the cost of the two products. Following activities have been identified along with their associate costs

Table 6.01

Overhead costs	Value in Rupees
Depreciation	500,000
Factory lease	400,000
Inspection	150,000
Material Handling	200,000
Power	100,000
Set up costs	250,000
Product engineering charges	50,000





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The analysts have identified following potential activity drivers and capacity of each.

Table 6.02

	Portable	Standard
Total Direct labour cost (RS)	150,000	180,000
Total Machine Hours	8,000	12,000
Total Material cost (RS)	900,000	1,300,000
Number of moves	3,500	4,500
Number of set ups	300	700
Engineering hours	1500	2500
No. of Square Feet	1500	3500
Inspected hours	1500	2500
Units produced	10,000	15,000

Required,

- Allocate the Overhead cost for the two models based on Activity based Costing (Use machine Hours as the activity driver for electricity expenses) (05 Marks)
- Calculate the Total cost of each product (15 Marks)

## Question 07

- "Standard cost is a predetermined cost which determines what each product or a service should cost under given circumstances". Clearly explain the advantages of Standard costing (05 Marks)
- PQR Ltd is planning to produce and sell 1500 units per period of a new product called "X". The following information have been set for a unit of "X".

Table 4.01

Standard cost sheet (Per Unit)	
Direct Material (1.2 Kgs at RS 100 per Kg.)	.....
Variable Overhead cost (1 hour at RS 60 per hour)	.....
Direct labour (cost per hour RS 95)	.....





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Operation I	45 minutes	
Operation II	30 minutes	

Company has planned to sell products at RS 300 per each.

**Actual results** for the period are,

Production and sales	1400 units
Direct labour	Cost RS 210,000 for 2100 hours
Material	Cost RS 163, 800 for 1820 Kg s
Total Variable cost	RS 104,400
Selling price per unit	295

**Required,**

- (i) Calculate Standard cost for one unit (Ignore Fixed Overheads)
- (ii) Calculate the total Material variances (With all sub variances)
- (iii) Calculate the total labour variances (With all sub variances)
- (iv) Selling price variance and sales volume contribution variance

(5\*4 Marks)

-----END OF THE QUESTION PAPER-----



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05

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Use the following format for Question 01 (Attach this to the answer booklet)

Index Number: .....

..... Company

Income Statement

For the year ended 31<sup>st</sup> March 2018

	Notes	RS.	RS.
Sales			
Cost of Goods Sold			
Gross Profit			
Other income			
Distribution expenses			
Administrative expenses			
Other expenses			
Financial Expenses			
Profit before tax			
Income tax			
Profit for the year			
<b>Other Comprehensive Income</b>			
Total Comprehensive Income			



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..... Company

## Statement of Financial Position

As at 31<sup>st</sup> March 2018

Assets	Notes	RS.	RS.
Non-Current Assets			
Property plant and equipment			
Current Assets			
Total Assets			
<u>Equity and Liabilities</u>			
Equity			





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Noncurrent Liabilities			
Current liabilities			
Total Equity and Liabilities			



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Course CODE: COM552

Year I Semester II

SEMESTER END EXAMINATION

Business Law – BSCMI309

- This paper consists of EIGHT (08) questions on FOUR (04) pages.
- Answer FIVE (05) questions including question 01.
- Only Non-programmable calculators are allowed.
- You may use appropriate graphs, diagrams, equation/s to prove or justify the answers.
- If you have any doubt as to the interpretation of the wording of a question, make your own decision, but clearly state it on the script.
- Write legibly.

Date: 2019.01.21

Pass mark: 40%

Time: 03 Hours

## Question 01: (Compulsory)

In Sri Lanka, we are getting all types of electricity, whether domestic or industrial, from the different sources of generating it. Thermal power generation is becoming quite popular in the country due to the operation of the Norochcholai Power Plant that runs with Coal. In this entire supply chain where the Coal is transported from South Africa and brought to Puttlam Jetty by using mother vessels and barges that are then sent to the power plant to generate the electricity where the final product is used at our homes and in industries; many service providers are playing different roles. For example, the Coal is purchased by Lanka Coal Company, which is a Government Treasury owned entity; carried by Ceylon Shipping Corporation, the national carrier of the country; and the Coal is used by the Ceylon Electricity Board. Annually, we need at least 2.2 million metric tons of Coal to generate the required power while 35-40 shipments are needed to be carried during a six months window. Considering this operation, answer the following:

- (a) Name three (3) main types of Charterparties existing in the field of shipping and explain them briefly. (06 Marks)
- (b) State the other two (2) main types of carriage contracts that prevail in shipping in addition to Charterparties. (04 Marks)





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- (c) Identify and explain the best model of transportation (contract of carriage) of the Coal in the case study mentioned above. (10 Marks)

### Question 02

- (a) Define the term 'INCOTERM' and state the organization that publish and update them. (04 Marks)
- (b) State two (2) reasons for the use of INCOTERMS by exporters and importers in their business and trade activities. (02 Marks)
- (c) Briefly explain the following INCOTERMS:  
(i) FOB      (ii) CIF      (iii) ExW      (iv) FCA      (02 Marks each)
- (d) A Philippine based Freight Forwarder wishes to employ a Sri Lanka based Freight Forwarder as its Agent for shipment that is to be consigned to a Customer in Philippines from Sri Lanka. In order to advice his customer in Philippines, the Freight Forwarder in Philippines request the Sri Lankan Freight Forwarder to suggest the most comfortable INCOTERM that he (Sri Lanka based Forwarder) wishes to operate within. Provide your answer with justification. (06 Marks)

### Question 03

- (a) Define the term 'Maritime Claims'. (02 Marks)
- (b) Provide three (3) examples for Proprietary Maritime Claims. (03 Marks)
- (c) Provide three (3) examples for General Maritime Claims. (03 Marks)
- (d) Define the term 'Lien' and explain the terms 'Statutory Lien' and 'Common Law Lien'. (05 Marks)
- (e) Provide five (3) examples for 'Maritime Lien'. (03 Marks)
- (f) Explain the reason for unification of law relating to maritime liens is important. Also state whether it could overcome 'forum shopping' scenarios. (04 Marks)





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### Question 04

(a) Define and explain the following:

- |                      |            |
|----------------------|------------|
| (i) Agency           | (03 Marks) |
| (ii) Agent           | (02 Marks) |
| (iii) Fiduciary Duty | (03 Marks) |

(b) State and explain the methods by which an agency can be terminated.

(06 Marks)

(c) Identify and explain the differences between expressed appointment and implied appointment.

(06 Marks)

### Question 05

Law is a set of rules which regulates human behaviour. To regulate human behaviour law has been developing from many centuries with the help of several principal and subsidiary sources. Explain the following areas of law with reference to the above statement.

(5\*4 Marks)

- The nature of law
- Historical developments of law
- Principal sources of law
- Subsidiary sources of law

### Question 06

Explain the following branches of law with examples.

- |   |            |
|---|------------|
| (a) Municipal law and International law | (07 marks) |
| (b) Civil law and Common law            | (06 marks) |
| (c) Substantive law and Procedural law  | (07 marks) |



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### Question 07

All agreements are not contracts, but in order for a contract to take place an agreement is an essential element of a contract. Likewise in order to make a binding contract, a contract has to be comprised of certain essential elements.

In light of the above statement explain the foremost important three essential elements of a contract.

(20 marks)

### Question 08

Any binding contract has terms, where parties to the contract have agreed on. These terms based on the nature of it can be categorised as expressed and implied terms.

In reference to the above statement, explain expressed and implied terms giving prominence to conditions and warranties.

(20 marks)

-----END OF THE QUESTION PAPER-----





Year I Semester II

SEMESTER END EXAMINATION

Legislation for Tourism and Hospitality Industry – THM 12103

- This paper consists of EIGHT (08) questions on THREE (03) pages.
- Answer FIVE questions including question 01.
- You may use appropriate graphs, diagrams, equation/s to prove or justify the answers.
- If you have any doubt as to the interpretation of the wording of a question, make your own decision, but clearly state it on the script.
- Write legibly.

Date: 2019.01.21

Pass mark: 40%

Time: 03 Hours

**Question 01: (Compulsory)**

- (a) Describe in your words the terms 'Employer' and 'Employee'. Also explain the way in which an 'Employee' differs from an 'Independent Contractor'. (05 Marks)
- (b) "A contract is a very important element in any subject that refers to service industry such as hospitality. There are many types of contracts that may be entered in this area of services including employment contracts, food and beverage contract, guest accommodation contract, and etc." State the four main important ingredients that would become necessary in the formation of a Contract and describe them briefly. (06 Marks)
- (c) Explain the Donoghue v Stevenson [(1932) AC 562 HL] case in relation to breach of the duty of care and resultant damage. Also, you are required to mention the facts of the case. (04 Marks)
- (d) Discuss the nature of an Agent in hospitality industry, and explain the main roles and functions that that a Principal expect from such Agent. (05 Marks)

**Question 02**

"In the hospitality industry, maintaining reasonable care of the guest, especially in hotels is an extremely important responsibility on the hotel or the host. Breaching this care might end up in liabilities of various types." Based on this statement, answer the following:

- (a) List five (5) types of breaches that a hotel or a host may inflict upon a guest due to lack of reasonable care. (05 Marks)





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Course CODE: BMgt 556/557

- (b) Identify the main areas of the law in which a guest could sue the hotel or the host in circumstances of any breach of the reasonable care. (06 Marks)
- (c) Describe the type of liability of the hotel or the host in case where certain property of a guest been lost inside. (09 Marks)

## Question 03

Assume that the Managing Director of the hotel that you will be working in the future requires an extensive presentation on the Food Act No. 26 of 1980 to be made to a leading Hotel Show & Exhibition Conference convened in Colombo, Sri Lanka. Provide this essay type presentation highlighting the much important areas of the said Food Act. (20 Marks)

## Question 04

- (a) "It is mandatory that the conditions and warranties provided in the services are maintained by hotels, restaurants, guest houses, and travel companies." Define and explain the term 'Warranty'. (08 Marks)
- (b) Service providers in the hotel and tourism industry need to be extra cautious of their obligations towards their customers in operating their businesses under the law. They are expected to comply with the Consumer Affairs Authority Act No. 9 of 2003 and regulations made under that law. Discuss briefly the main duties and obligations of service providers in line with the said law. (12 Marks)

## Question 05

Law is a set of rules which regulates human behaviour. To regulate human behaviour law has been developing from many centuries with the help of several principal and subsidiary sources. Explain the following areas of law with reference to the above statement.

- (a) The nature of law
- (b) Historical developments of law
- (c) Principal sources of law
- (d) Subsidiary sources of law (4\*5 Marks = 20 Marks)





### Question 06

Explain the following branches of law with examples.

- (a) Municipal law and International law (07 Marks)
- (b) Civil law and Common law (06 Marks)
- (c) Substantive law and Procedural law (07 Marks)

### Question 07

Write short notes on the following.

- (a) Law of Obligation (05 Marks)
- (b) Law of Contract (05 Marks)
- (c) Law of Tort (05 Marks)
- (d) Law of Property (05 Marks)

### Question 08

- (a) All agreements are not contracts, but in order for a contract to take place an agreement is an essential element of a contract. Likewise in order to make a binding contract, a contract has to be comprised of certain essential elements.

In light of the above statement explain the foremost important three essential element of a contract. (10 Marks)

- (b) Any binding contract has terms, where parties to the contract have agreed on. These terms based on the nature of it can be categorised as expressed and implied terms.

In reference to the above statement, explain expressed and implied terms giving prominence to conditions and warranties. (10 Marks)

-----END OF THE QUESTION PAPER-----

Library

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# Colombo International Nautical and Engineering College

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Faculty of Management, Humanities and Social Sciences

Department of Logistics & Transport

B.Mgt. (Hons) in Supply Chain Management

Course CODE: COM552

Year I Semester II

SEMESTER END EXAMINATION

Business Mathematics II – BSCMI211

- This paper consists of SEVEN (07) questions on SIX (06) pages.
- Answer FOUR (04) questions including question 01.
- Only Non-programmable calculators are allowed.
- You may use appropriate graphs, diagrams, equation/s to prove or justify the answers.
- If you have any doubt as to the interpretation of the wording of a question, make your own decision, but clearly state it on the script.
- Write legibly.

Date: 2019.01.18

Pass mark: 40%

Time: 02 Hours

## Question 01 - Compulsory

(a) Differentiate followings

(i)  $y = \sin x + x \cos x$  (02 Marks)

(ii)  $y = e^x * x^2$  (03 Marks)

(b) Use chain rule and differentiate followings

(i)  $y = \ln(x^5 + 8)$  (05 Marks)

(ii)  $y = 3 e^{\sin x}$  (05 Marks)

(c) Use integration by parts

(i)  $\int \frac{x}{e^x} dx$  (05 Marks)





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(d) If  $A = \begin{pmatrix} a & b \\ c & d \end{pmatrix}$  show that  $AA^T$  is a symmetric matrix. (05 Marks)

## Question 02

(a) Differentiate following functions (14 Marks)

(i)  $y = 3 \sin 5x + 3 \cos 2x - x$

(ii)  $y = \frac{2x^3}{3} + \frac{e^{4x}}{2}$

(iii)  $y = \sqrt{x} + \ln(\sqrt{x})$  Hint: Use the laws of logarithms

(iv)  $y = (3x^2 + 5x - 10)^{10}$

(v)  $y = \frac{\sin x}{4 \cos x + 1}$

(vi)  $y = \frac{5e^x}{x \sin x}$

(vii)  $y = \ln(5 + 6 \sin x)$

(b) Differentiate following functions and evaluate them at given value

(i)  $y = \frac{x^2 - 4x + 6}{3}; \quad t = 2$  (03 Marks)

(ii)  $y = 2x + 9 + e^{x/2} \quad t = 1$  (03 Marks)

(c) Y is a function of 't'.

$$y = \frac{t^3}{3} - \frac{5t^2}{2} - 4t + 1$$



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(i) Find  $\frac{dy}{dt}$  (02 Marks)

(ii) For which values of  $t$ , is the  $dy/dt$  zero (03 Marks)

## Question 03

(a) Integrate followings using a suitable substitution (25 Marks)

(i)  $\int \frac{3}{(2x+5)^6} dx$

(ii)  $\int x^2 * e^{x^3} dx$

(iii)  $\int \sin 2x * e^{\cos 2x} dx$

(iv)  $\int \cos x * \sqrt{\sin x} dx$

(v)  $\int (9x - 4)^{17} dx$

## Question 04

(a) Given that  $A^2$  means product of a matrix  $A$  with itself,

$$A = \begin{pmatrix} 4 & 2 \\ 1 & 3 \end{pmatrix}$$

(i) Find  $A^2$  (03 Marks)

(ii) Find  $A^3$  (03 Marks)





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(b) Consider 2\*2 matrices given below and answer following questions

$$A = \begin{pmatrix} 1 & 3 \\ -2 & 4 \end{pmatrix}$$

$$B = \begin{pmatrix} 2 & 1 \\ -4 & 5 \end{pmatrix}$$

- (i) Find AB (03 Marks)  
(ii) Find BA (03 Marks)  
(iii) Find  $(A + B)^2$  (03 Marks)  
(iv) Find  $A^2$  (03 Marks)  
(v) Find  $B^2$  (03 Marks)  
(vi) Hence show that  $(A + B)^2 = A^2 + B^2 + AB + BA$  (04 Marks)

## Question 05

(a) Find  $dy/dx$  for followings; (08 Marks)

(i)  $x = \cos 2t$   $y = 3t$

(ii)  $x = (1+t)^3$   $y = 1+t^3$

(iii)  $x = \sin t$   $y = 3e^t$

(iv)  $x = t^3 + t^2 + t$   $y = \sin 3t$

(b) for below functions find  $\frac{\partial z}{\partial x}$  and  $\frac{\partial z}{\partial y}$  (12 Marks)

(i)  $z = x^3 + 2x^2y - 4xy^2 + 2y^3$

(ii)  $z = 4 \cos(4x - 5y)$

(iii)  $z = x \sin xy - y^2 \cos 2y$





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$$(iv) z = \frac{\sin 2y}{x}$$

(c) Given  $z = 2x^2y - \sqrt{x} * y$

(i) Find  $\frac{\partial z}{\partial y}$  (02 Marks)

(ii) Find  $\frac{\partial z}{\partial x}$  (02 Marks)

(iii) Evaluate them when  $x = 2$  and  $y = 1$ . (01 Mark)

## Question 06

(a) Consider matrix M below

$$M = \begin{pmatrix} \cos 2x & -\sin 2x & 0 \\ \sin 2x & \cos 2x & 0 \\ 0 & 0 & 1 \end{pmatrix}$$

If M is orthogonal, Find  $M^{-1}$  (06 Marks)

(b) Consider  $A = \begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$

(i) Find  $A^{-1}$  (06 Marks)

(ii) Find values of 'a' and 'b' such that  $A + a A^{-1} = b I$ ; Where I is a 2\*2 identity matrix (06 Marks)

(c) If  $A = \begin{pmatrix} a & b \\ c & d \end{pmatrix}$  and 'p' is a scalar constant, show that the inverse of matrix

$$k A = \frac{1}{k} A^{-1} \quad (07 \text{ Marks})$$



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## Question 07

(a) For following matrices find  $\text{Adj}(A)$ ,  $|A|$  and  $A^{-1}$  if exist (09 Marks)

(i)  $A = \begin{pmatrix} 10 & -5 & -4 \\ -5 & 10 & -3 \\ -4 & -3 & 8 \end{pmatrix}$

(ii)  $A = \begin{pmatrix} 3 & 5 & 1 \\ 2 & 5 & 5 \\ -1 & 7 & 0 \end{pmatrix}$

(iii)  $A = \begin{pmatrix} 2 & -3 & 1 \\ 2 & -1 & 1 \\ 2 & -2 & -1 \end{pmatrix}$

(b) Solve below simultaneous equations using matrix knowledge.

(i)  $8x + 3y = 59$  and  $-2x + y = -13$  (05 Marks)

(ii)  $4x + 4y = 20$  and  $x + 3y = 11$  (05 Marks)

(iii)  $4x + y + 3z = 20$ ,  $2x - y + 4z = 20$  and  $y + 5z = 20$  (06 Marks)

-----END OF THE QUESTION PAPER-----





Year I Semester II  
SEMESTER END EXAMINATION  
Human Resource Management - BRMB 1312

- This paper consists of EIGHT questions on THREE (03) pages.
- Answer FIVE (05) questions including question 01.
- You may use appropriate graphs, diagrams, equation/s to prove or justify the answers.
- If you have any doubt as to the interpretation of the wording of a question, make your own decision, but clearly state it on the script.
- Write legibly.

Date: 2019.01.18

Pass mark: 40%

Time: 03 Hours

**Question 01 (Compulsory)**

As a new member of the board of directors for a local bank, Jack Nelson was being introduced to all the employees in the home office. When he was introduced to Ruth Johnson, he was curious about her work and asked her what the machine she was using. Johnson replied that she really did not know what the machine was called or what it did. She explained that she had only been working there for two months. She did, however, know precisely how to operate the machine. According to her supervisor, she was an excellent employee.

At one of the branch offices, the supervisor in charge spoke to Nelson confidentially, telling him that "something was wrong," but she didn't know what. For one thing, she explained, employee turnover was too high, and no sooner had one employee been put on the job than another one resigned. With customers to see and loans to be made, she continued, she had little time to work with the new employees as they came and went.

All branch supervisors hired their own employees without communication with the home office or other branches. When an opening developed, the supervisor tried to find suitable employee to replace the worker who had quit.

After touring the 22 branches and finding similar problems in many of them, Nelson wondered what the home office should do or what action he should take. The banking firm was generally regarded as a well-run institution that had grown from 27 to 191 employees during the past eight years. The more he thought about the matter, the more puzzled Nelson became. He couldn't quite put his finger on the problem, and he didn't know whether to report his findings to the president.





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Department of Management and Business Studies

BMgt (Hons.) in Retail Marketing and Branding

Course CODE: BMgt 555

- (a) What do you think is causing some of the problems in the bank's home office and branches? (04 Marks)
- (b) Do you think setting up an HR unit in the main office would help? (07 Marks)
- (c) What specific functions should an HR unit carry out? What HR functions would then be carried out by supervisors and other line managers? (09 Marks)

## Question 02

- (a) Why job designing is significant? Briefly explain. (04 Marks)
- (b) What are the techniques of Job Design? Describe each technique briefly. (06 Marks)
- (c) It is more likely that making the job more productive by using more efficiency elements causes productive by using more efficiency elements causes it to be less satisfying. Contradictorily, making the job more satisfying by using more behavioral elements more likely proves to be less productive. It means that more likely proves to be less productive. It means that attempting to achieve both productivity and employee satisfaction to the highest extent is mutually exclusive (contradictory). What should the Human Resource Specialist do? (10 Marks)

## Question 03

- (a) Identify two advantages and two disadvantages of applications as a method of employee selection. (04 Marks)
- (b) "Three properties of an employment test are reliability, validity and practicability." Describe. (06 Marks)
- (c) Assume you are supposed to hold an employment interview to select three job applicants for the post of Logistics Manager. Describe distinctly how you activate in this regard. (10 Marks)

## Question 04

- (a) Define the term "Hiring". (03 Marks)
- (b) Briefly explain two principles of managing probationers. (06 Marks)
- (c) Briefly explain the steps of Hiring Process. (11 Marks)





**Question 05**

- (a) Define the term "Training". (02 Marks)
- (b) Briefly explain the three advantages of "Training and Development". (09 Marks)
- (c) Briefly explain three learning curves. (09 Marks)

**Question 06**

- (a) Define the term "Discipline Administration". (02 Marks)
- (b) Briefly explain the three main objectives of "Discipline Administration". (09 Marks)
- (c) Briefly explain the three main types of disciplines. (09 Marks)

**Question 07**

- (a) Define the term "Grievance". (03 Marks)
- (b) Identify five characteristics of good grievance handling procedure. (05 Marks)
- (c) Briefly explain three steps of grievance handling procedure. (12 Marks)

**Question 08**

- (a) Define the terms "Health" and "Safety". (04 Marks)
- (b) Identify four major forms of hazards. (04 Marks)
- (c) Briefly explain three causes for low quality work life. (12 Marks)

-----END OF THE QUESTION PAPER-----



*Z. H. M. S.*

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Colombo International Nautical and Engineering College

CINEC Campus  
Faculty of Management, Humanities and Social Sciences  
Department of Logistics & Transport  
B.Mgt. (Hons) in Supply Chain Management  
Course CODE: COM552

**Year I Semester II**  
**SEMESTER END EXAMINATION**  
**Financial and Cost Accounting – BSCM1210**

- This paper consists of SEVEN (07) questions on NINE (09) pages.
- Answer FOUR (04) questions including question 01.
- Only Non-programmable calculators are allowed.
- You may use appropriate graphs, diagrams, equation/s to prove or justify the answers.
- If you have any doubt as to the interpretation of the wording of a question, make your own decision, but clearly state it on the script.
- Write legibly.
- Supporting documents are attached.

Date: 2019.01.16

Pass mark: 40%

Time: 02 Hours

**Question 01: (Compulsory)**

**USE THE GIVEN FORMAT TO ANSWER THE QUESTION**

TKY (PLC) is a company, which engages in Cement industry. Its main business operations are buying cement from manufacturing organizations and selling in the market. Following trail balance is given by the department of finance as at 31<sup>st</sup> March 2018

Trail balance as at 31.03.2018

Description	Debit	Credit
	(RS 000')	(RS 000')
Purchases	141,100	
Sales		188,000
Carriage Inwards	500	
Trade Payables		23,000
Electricity Expenses	7,000	





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Insurance Expenses	2,500	
Return Inwards	2,150	
Return Outwards		1,100
Bank Loan (@ 8% Interest)		15,000
Rent Expenses	1,500	
Stated Capital (RS. 10 each)		222,750
Cash & Bank	15,000	
<b>Property Plant &amp; Equipment at cost (As at 01.04.2017)</b>		
Land	100,000	
Buildings	50,000	
Machinery	80,000	
Inventory as at 01st of April 2017	26,000	
Auditors Remuneration	1,000	
Distribution and Transportation costs	1,000	
Trade Receivables	25,000	
Salaries and Wages	8,200	
Repair and Maintenance	2,100	
Rent Income		1000
Discounts received		800
Advertising expenditure	600	
<b>Accumulated Depreciation of PPE as at 01st of April 2017</b>		



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Buildings		5,000
Machinery		7,000
Total	463,650	463,650

Following are the adjustments which should be made in the financial statements for 2017/ 2018 financial year.

- (i) Inventory as at 31/03/2018 amounting to RS 25 Million
- (ii) Following expenses are accrued as at 31<sup>st</sup> March 2018  
Advertising expenses RS 150, 000  
Distribution and Transportation expenses RS 210,000
- (iii) Following expenses are paid in advance as at 31<sup>st</sup> March 2018  
Insurance expenses RS 120,000  
Rent Expenses RS 200,000
- (iv) A Bank loan has been taken at 8% interest. But still the interest expenses have not been paid
- (v) For 2016 / 2017 depreciation expenses should be charged on cost as follows
  - Buildings - 5 % per annum.
  - Machinery- 10% per annum
- (vi) Bad debt should be 10% from the debtors
- (vii) The Land has been revalued as at 01<sup>st</sup> of January 2018 to RS 115 Million
- (viii) Corporate tax rate imposed by Inland Revenue Department (IRD) for the year 2015 / 2016 is 20 % per annum.





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## Required:

- (a) Prepare Income statement for the financial year 2017/2018 (15 Marks)  
(b) Prepare the Statement of Financial Position as at 31<sup>st</sup> March 2018. (10 Marks)

*Note:* Candidates should follow LKAS 01 / IFRS 01 / IAS 01 for the "Preparation & Presentation of Financial Statements"

## Question 02

Based on the financial statements you have prepared for TKY PLC (Question No. 01),

- (i) Calculate the following ratios for 2017/2018 Financial year. (Refer Table 2.01)  
(ii) Give your recommendations on company performance, by comparing the calculated ratios with 2016/2017 years

Table 2.01

Ratio	Ratios for 2017/2018 years	Ratios for 2016/2017 year
Gross Profit Margin (%)	----	20.12%
Net profit Margin (%)	----	2.5%
Return on Assets	----	1.5%
Return on Equity	----	1.5%
Current Ratio	----	2
Debt to Total Assets ratio	----	25%
Debt to Equity Ratio	----	33.33%
Earnings Per share (RS)	----	0.1

(25 Marks)

## Question 03

- (a) "Management Accounting has become a vital source of information for managers of organizations in general and business endeavors in facing challenges encountered in a world of increasing complexity". Clearly explain the major differences between Financial Accounting and Management accounting. (08 Marks)



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- (b) Clearly explain **main qualitative characteristics of Accounting** (06 Marks)
- (c) "Environmental Accounting is a broad term which covers both national and corporate level environmental performance activities and associate stake holder interactions"
- (i) Briefly explain, what is meant by "Environmental Accounting" (05 Marks)
- (ii) Discuss the role of "Environmental Accounting" for enterprises with appropriate examples (06 Marks)

### Question 04

Ms. Anusha started a business engaged in flower decorations on 01<sup>st</sup> of January 2018. The opening balance of Capital is RS 300,000. Liabilities are RS 200,000 and the assets are RS 500,000

Following transactions were occurred during the month of January 2018

02<sup>nd</sup> Jan - Purchased Flowers at a cost of RS 100,000 (Hint: Increase Inventory by RS 100,000 and reduce cash by RS 100,000)

03<sup>rd</sup> Jan - Sold flower bouquets for RS 50,000 and the cost of them were RS 35,000

04<sup>th</sup> Jan - sold flower bouquets for RS 75,000 on credit for one of her customers, Ms. Madhusa. The cost of the flowers was RS 45,000

05<sup>th</sup> Jan - Purchased furniture from Lakdiva furniture PLC, for decorating front office worth RS 65,000, on credit

06<sup>th</sup> Jan - Anusha has taken RS 5,000 for her personnel use

09<sup>th</sup> Jan - Issued a cheque for Lakdiva PLC for the purpose of paying for furniture purchased

10<sup>th</sup> Jan - Invested RS 30,000 (Cash of the business) for opening a new flora branch in Colombo

12<sup>th</sup> Jan - Purchased RS 50,000 worth flowers from Mr. Maduranga on credit

21<sup>st</sup> Jan - paid salaries worth RS 15,000

22<sup>nd</sup> Jan - Received Interest income received RS 3,000

25<sup>th</sup> Jan - paid RS 50,000 worth cash to Mr. Maduranga, for the liability on 12<sup>th</sup> January





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Required,

- Put the transactions in to basic Accounting Equation. And briefly explain the reasons to change the equity value at the end of the month (15 Marks)
- Prepare an Income statement for the month ended 31<sup>st</sup> Jan 2018 (05 Marks)
- Prepare a Statement of Financial Position as at 31<sup>st</sup> Jan 2018 (05 Marks)

## Question 05

Sinhagiri (Pvt) Ltd is one of the famous restaurants located in Dambulla Sri Lanka. According to the customer perception, the restaurant is considered as a very good place for them to have meals and stay. Following information are related to restaurant's annual sales revenue and costs

Table 3.01

	Value in LKR
Sales Revenue	10,000,000
Fixed Costs	4,500,000
Variable Costs	2,500,000

Restaurant is normally charging RS 1000 per meal.

- Define the term "contribution" (03 Marks)
- How many meals should the restaurant need to sell normally to have its breakeven. (05 Marks)
- Currently, what is the margin of safety that has been achieved by the restaurant (Calculate In units as well as in Rupees) (06 Marks)
- If Restaurant needs to earn a Target profit of RS 3,500,000 how many meals should be sold by them. (06 Marks)
- Calculate the Net profit of the restaurant if the number of meals is going to be increased to 12,500 units (Assume variable costs will also be changed according to that.) (05 Marks)



### Question 06

(a) Explain the importance of Activity Based Costing (ABC) system as an overhead allocation system for decision making (05 Marks)

(b) PQR Company makes two models of antitheft devices. The portable model is relatively small and is primarily for use in automobiles. The standard model is much larger and is designed for houses and buildings.

PQR has conducted a special study to determine if an Activity Based Costing (ABC) would be beneficial in determining the cost of the two products. Following activities have been identified along with their associate costs

Table 6.01

Overhead costs	Value in Rupees
Depreciation	500,000
Factory lease	400,000
Inspection	150,000
Material Handling	200,000
Power	100,000
Set up costs	250,000
Product engineering charges	50,000

The analysts have identified following potential activity drivers and capacity of each.

Table 6.02

	Portable	Standard
Total Direct labour cost (RS)	150,000	180,000
Total Machine Hours	8,000	12,000
Total Material cost (RS)	900,000	1,300,000
Number of moves	3,500	4,500
Number of set ups	300	700
Engineering hours	1500	2500
No. of Square Feet	1500	3500
Inspected hours	1500	2500
Units produced	10,000	15,000





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Course CODE: COM552

Required,

- (i) Allocate the Overhead cost for the two models based on Activity based Costing (Use machine Hours as the activity driver for electricity expenses) (05 Marks)
- (ii) Calculate the Total cost of each product (15 Marks)

## Question 07

- (a) "Standard cost is a predetermined cost which determines what each product or a service should cost under given circumstances". Clearly explain the advantages of Standard costing (05 Marks)
- (b) PQR Ltd is planning to produce and sell 1500 units per period of a new product called "X". The following information have been set for a unit of "X".

Table 4.01

Standard cost sheet (Per Unit)	
Direct Material (1.2 Kgs at RS 100 per Kg.)	.....
Variable Overhead cost (1 hour at RS 60 per hour)	.....
Direct labour (cost per hour RS 95)	.....
Operation I     45 minutes	
Operation II    30 minutes	

Company has planned to sell products at RS 300 per each.

**Actual results** for the period are,

Production and sales	1400 units
Direct labour	Cost RS 210,000 for 2100 hours
Material	Cost RS 163, 800 for 1820 Kg s
Total Variable cost	RS 104,400
Selling price per unit	295



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Course CODE: COM552

**Required,**

- (i) Calculate Standard cost for one unit (Ignore Fixed Overheads)
- (ii) Calculate the total Material variances (With all sub variances)
- (iii) Calculate the total labour variances (With all sub variances)
- (iv) Selling price variance and sales volume contribution variance

(05 Marks for each)

-----END OF THE QUESTION PAPER-----





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Use the following format for Question 01 (Attach this to the answer booklet)

Index Number: .....

..... Company

## Income Statement

For the year ended 31<sup>st</sup> March 2018

	Notes	RS.	RS.
Sales			
Cost of Goods Sold			
Gross Profit			
Other income			
Distribution expenses			
Administrative expenses			
Other expenses			
Financial Expenses			
Profit before tax			
Income tax			
Profit for the year			
<b>Other Comprehensive Income</b>			
Total Comprehensive Income			



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..... Company

## Statement of Financial Position

As at 31<sup>st</sup> March 2018

Assets	Notes	RS.	RS.
Non-Current Assets			
Property plant and equipment			
Current Assets			
Total Assets			
<u>Equity and Liabilities</u>			
Equity			





Noncurrent Liabilities			
Current liabilities			
Total Equity and Liabilities			

Library



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Year I Semester II

SEMESTER END EXAMINATION

Supply Chain Management – BSCM1414

- This paper consists of EIGHT (08) questions on FIVE (05) pages.
- Answer FIVE (05) questions including question 01.
- Only Non-programmable calculators are allowed.
- You may use appropriate graphs, diagrams, equation/s to prove or justify the answers.
- If you have any doubt as to the interpretation of the wording of a question, make your own decision, but clearly state it on the script.
- Write legibly.

Date: 2019.01.14

Pass mark: 40%

Time: 03 Hours

## Question 01: (Compulsory)

### Trade Show on Tour

Two of the world's leading electronics manufacturers needed a transportation and logistics company experienced in trade shows and exhibitions to assist with a six-week road show that would stop in 34 different cities. The challenge was to schedule their exhibits to arrive at each event location on time and without damage. UniGroup Logistics which is a 3PL provided both clients with a customized solution to meet each of their particular road show needs.

The Logistics solution included seven dedicated van operators, each with air-ride equipped tractor trailers to transport the exhibits. Each van operator was assigned to multiple show deliveries over a six-week time frame and assisted with the set up and teardown at each location. Organizing the effort in this way helped give the client reassurance that the van operators would arrive on time at each event, be knowledgeable about the set up and tear down processes, and deliver the products in pristine condition.





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The challenge was overcome with a set transportation schedules to efficiently plan each trip to result in on time delivery of product, consolidating both exhibits onto one trailer to reduce overall cost for each client, team service when time between events did not allow for standard transit, knowledgeable and experienced van operators to assist with the set-up and removal of product that was being displayed at each of the 34 events, assurance that trade show displays were in pristine condition at each event by providing blanket wrap service and properly securing the freight for each leg of transit.

(a) Explain how consolidation can be used in supply chain to enhance cost efficiency

(06 Marks)

(b) Explain how sound supply chain scheduling can improve operational effectiveness?

(07 Marks)

(c) Elaborate on the challenges of using an outsourced 3PL party for logistics operations in the context of Sri Lanka

(07 Marks)

## Question 02

(a) What is purpose of inventory management?

(07 Marks)

(b) What is Bull-Whip effect in supply chain?

(07 Marks)

(c) What is Six-Sigma Quality?

(06 Marks)



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## Question 03

(a) Elaborate on the importance of using Supply Chain Management in terms of customer experience with examples.

(10 Marks)

(b) Inaya is the purchasing manager at AgroNext, explain how she can use The Weighted-Criteria Evaluation System to find the right Agri Equipment suppliers.

(10 Marks)

## Question 04

(a) Compare & contrast the terms, logistics management & supply chain management with examples.

(08 Marks)

(b) The revenue of Power Leap training company is given in the below table. The company uses a 4-period weighted moving average to forecast revenue.

Propose a weightage system and justify your proposal. What is the revenue forecast for December?

Month	Revenue (Millions)
May	4.56
June	3.54
July	3.21
August	3.20
September	3.90
October	3.98
November	4.39

(12 Marks)





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## Question 05

- (a) Elaborate on how Silo Mentality in Sri Lankan organizations affects the effective & efficient functioning of supply chain with examples.

(10 Marks)

- (b) "Sri Lanka Government aims to promote Sri Lanka as a Global Business Hub".

Explain critical location factors that the government should focus on enmeshing in order to achieve the above goal

(10 Marks)

## Question 06

- (a) Explain how ABC Analysis can be used in innovative ways in the context of logistics with examples.

(10 Marks)

- (b) Chathush started working on his new role as logistics manager at Logista & wants to set new supply chain metrics for warehouse operation.

Explain how Chathush can set effective KPIs to measure warehouse operation effectiveness

(10 Marks)



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## Question 07

- (a) Identify & explain the implications of at least two global supply chain challenges for Sri Lankan Apparel Industry with examples.

(10 Marks)

- (b) Explain how to reduce customer waiting time to enhance service response in logistics in the context of a supermarket.

(10 Marks)

## Question 08

- (a) "In today's marketplace, the order-winning criteria are more likely to be service based than product-based."

Do you agree with above statement? Explain with examples.

(10 Marks)

- (b) Explain the role of Sustainable Purchasing in the fight against global warming with examples.

(10 Marks)

-----END OF THE QUESTION PAPER-----



*Subramanyam*



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Course CODE: COM552

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Year I Semester II

SEMESTER END EXAMINATION

Business Statistics – BSCMI308

- This paper consists of EIGHT (08) questions on ELEVEN (11) pages.
- Answer FIVE (05) questions including question 01.
- Only Non-programmable calculators are allowed.
- You may use appropriate graphs, diagrams, equation/s to prove or justify the answers.
- If you have any doubt as to the interpretation of the wording of a question, make your own decision, but clearly state it on the script.
- Write legibly.
- Supporting documents are attached.

Date: 2019.01.09

Pass mark: 40%

Time: 03 Hours

## Question 01 - Compulsory

Underline the correct answer and attached question paper to the Answer Book

(20 Marks)

- 1) Which of the following statements are true?
  - I. Categorical variables are the same as qualitative variables.
  - II. Categorical variables are the same as quantitative variables.
  - III. Quantitative variables can be continuous variables.
  - A. I Only
  - B. II Only
  - C. III Only
  - D. I and III
  - E. I and II
  
- 2) Four friends take an IQ test. Their scores are 96, 100, 106, 114. Which of the following statements is true?



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- I. The mean is 103.
  - II. The mean is 104.
  - III. The median is 100.
  - IV. The median is 106.
- A. I only
  - B. II only
  - C. III only
  - D. IV only
  - E. II and III
- 3) Which of the following statements are true?
- I. The mean of a population is denoted by  $x$ .
  - II. Sample size is never bigger than population size.
  - III. The population mean is a statistic.
- A. I only.
  - B. II only.
  - C. III only.
  - D. All of the above.
  - E. II and III
- 4) A coin is tossed three times. What is the probability that it lands on heads *exactly* one time?
- A. 0.125
  - B. 0.250
  - C. 0.333
  - D. 0.375
  - E. 0.500
- 5) An bag contains 6 red marbles and 4 black marbles. Two marbles are drawn *with replacement* from the bag.  
What is the probability that both of the marbles are black?
- A. 0.16
  - B. 0.32





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- C. 0.36  
D. 0.40  
E. 0.60
- 6) Which of the following is a discrete random variable?  
I. The average weight of a randomly selected group of boys.  
II. The number of students registered at CINEC in 2018  
III. Space available in the Dean's office in square meters  
A. I only  
B. II only  
C. III only  
D. I and II  
E. II and III
- 7) A simple random sample consists of four observations: {1, 3, 5, 7}. Based on these sample observations, what is the best estimate of the standard deviation of the population?  
A. 2  
B. 2.58  
C. 6  
D. 6.67  
E. 3
- 8) A population consists of four observations: {1, 3, 5, 7}. What is the variance?  
A. 2  
B. 4  
C. 5  
D. 6  
E. 3



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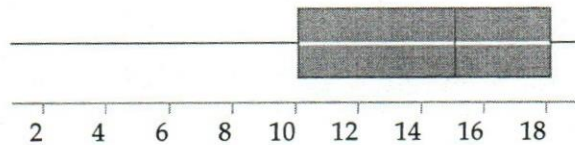
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- 9) Amal earned a score of 940 on a national IQ test. The mean test score was 850 with a standard deviation of 100. What proportion of students had a higher score than Amal? (Assume that test scores are normally distributed.)
- A. 0.10
  - B. 0.81
  - C. 0.18
  - D. 0.82
  - E. 0.90

- 10) Consider the boxplot below.



Which of the following statements are true?

- I. The distribution is skewed left.
- II. The interquartile range is about 8.
- III. The median is about 10.

- A. I only
- B. II only
- C. III only
- D. I and II
- E. II and III





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## Question 02

Project Team of Management Undergraduates of CINEC Campus is interested in analyzing the students' satisfaction level of CINEC shuttle service.

- (a) Write TWO demographic variables useful for the above analysis  
(02 Marks)
- (b) Write FIVE variables related to the students' satisfaction of shuttle service  
(05 Marks)
- (c) Suggest a suitable data collection method for the above study. Note that final report of the study has to be handed over to the Manager Administration, on or before 30<sup>th</sup> January 2019.  
(05 Marks)
- (d) What are the challenges in the above suggested data collection method.  
(02 Marks)
- (e) Suggest the best possible graph to illustrate below cases, indicating the important aspects that should be considered when creating the graph.  
(Constructing exact measurements is not required, but a sketch can be drawn.)  
(06 Marks)
  - (i) Project team want to illustrate the Distribution of overall students' satisfaction level of the CINEC shuttle service
  - (ii) Project team wants to illustrate gender distribution of each shuttle  
(Wattala, Gampaha and Kolpetty)

## Question 03

- (a) A quality control inspector tested nine samples of each of three designs A, B and C of certain bearing for a new electrical winch. The following data are the number of hours it took for each bearing to fail when the winch motor was run continuously at maximum output, with a load on the winch equivalent to 1.9 times the intended capacity.



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A :	16	16	53	15	31	17	14	30	20
B :	18	27	23	21	22	26	39	17	28
C :	31	16	42	20	18	17	16	15	19

(i) Calculate mean, median, range and standard deviation for each group  
(12 Marks)

(ii) Suggest which design is best. Justify your answer  
(03 Marks)

(iii) The mean monthly salaries paid to 100 employees of the above company was USD 50,000.

The mean monthly salaries paid to male and female employees were USD 52,000 and USD 42,000 respectively.

Determine the number of males and females employed by the company.

(05 Marks)

## Question 04

(a) Consider the following cases and decide whether they are binomial distribution or not  
(04 Marks)

(i) Transport service provider who has 06 trucks in his fleet check the availability of break problems in his fleet

(ii) Medical Officer selects 100 children from Galle district and categorize them as Non-Anemic, Mild Anemic, Moderate anemic and Severe Anemic according to the haemoglobin level in their blood

(b) A mobile phone manufacturer claims that defective rate of his production is 1%. These mobile phones are packed in boxes of 10. Retailer who ordered 25 such boxes, randomly selects a one box.

(i) What is the probability that exactly one of them are defective  
(03 Marks)

(ii) What is probability that exactly none of them are defective  
(03 Marks)

(iii) Find the average number of defectives  
(02 Marks)

(iv) What is the variance  
(02 Marks)





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- (v) What is the probability that more than EIGHT mobile phones are at good quality? (03 Marks)
- (vi) If a selected box consists of more than one defective the lot will be rejected by the retailer. Find the probability that lot will be accepted. (03 Marks)

## Question 05

A new automated production process has had an average of 1.5 breakdowns per day. Because of the cost associated with a breakdown, management is concerned about the possibility of having three or more breakdowns during a day. Assume that breakdowns occur randomly that the probability of a breakdown is the same for any two time intervals of equal length, and that breakdowns in one period are independent of breakdowns in other periods.

- (a) Suggest a suitable probability distribution to model the above case (03 Marks)
- (b) Write the probability density function of the above suggested distribution (02 Marks)
- (c) What are the parameters of the above distribution (02 Marks)
- (d) What is the probability of having three or more breakdowns during a day? (04 Marks)
- (e) What is probability of having no breakdowns during a day? (04 Marks)
- (f) What is the probability of having at most 15 breakdowns in a week (Assume that firm operates FIVE days a week.) (05 Marks)



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### Question 06

An average life time of LED bulbs, manufactured by the Demo Company is 300 days with a standard deviation of 50 days. Assuming that bulb life is normally distributed,

- (a) Calculate the probability that a LED bulb lasts at least 300 hours  
(04 Marks)
- (b) What is the probability that a LED bulb will last at most 365 days?  
(04 Marks)
- (c) What is the probability that a lifetime of a LED bulb is in-between 300 hrs to 400hrs  
(04 Marks)
- (d) If manufacturer is willing to claim only 5% warranty claims of his production, calculate the warranty period for the manufacturer.  
(08 Marks)

### Question 07

- (a) A box containing eight balls. Each ball is numbered and is coloured either red (R) or green (G) as shown below.

(1R) (2R) (3R) (4R) (1G) (2G) (2G) (3G)

A ball is drawn at random from the box. The following events are defined:

$N_1 = \{\text{the drawn ball is numbered 1}\}$

$N_2 = \{\text{the drawn ball is numbered 2}\}$

$R = \{\text{the drawn ball is red}\}$

- (i) Consider each pair of events. Which pairs of events are mutually exclusive? (02 Marks)
  - (ii) Find  $P(N_2 \text{ or } R)$  (02 Marks)
  - (iii) Find  $P(N_2 \text{ and } R)$  (02Marks)
  - (iv) Find  $P(N_2 | R)$  (04 Marks)
- (b) Consider the following information obtained from a student participated on a graduate employment survey.





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- i. Gender: Male
  - ii. Ethnicity: Sinhala
  - iii. Faculty: Management
  - iv. Degree type: Logistics special degree
  - v. Class received: general Pass
  - vi. Gross monthly salary: 50000/-
  - vii. Number of jobs applied: 4
  - viii. Employment status: employed
  - ix. Employment sector: Private
  - x. Job satisfaction: Strongly satisfied
- (i) Classify the responses by the type of the variable. (Qualitative, Quantitative - discrete, Quantitative - Continuous) (05 Marks)
- (ii) Identify the measurement scale of the each variable. (05 Marks)

## Question 08

- (a) Consider the stem and leaf plot given below and answer following questions.

STEM

0	1 1 2 3 3 4 4 6 7 8 8 9
1	4 4 7
2	1 4 4 7 8
3	3 6 6 7 8 9
4	2 6 9
5	0 0 2 7 7
6	1
7	0 1 3 8 9
8	2 7 8
9	3 6 9
10	9
11	5

- (i) Comment on the symmetry of the distribution (03 Marks)
- (ii) State, with reasons, which measure of central tendency you consider more appropriate for summarizing these data (04 Marks)
- (iii) State another graphical representation which can be used to describe the data set. (03 Marks)



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- (b) Write advantages and disadvantages of mean over median (03 Marks)  
(c) What is meant by relative and absolute measures of dispersion (03 Marks)  
(d) Write 03 applications of range (04 Marks)

-----END OF THE QUESTION PAPER-----





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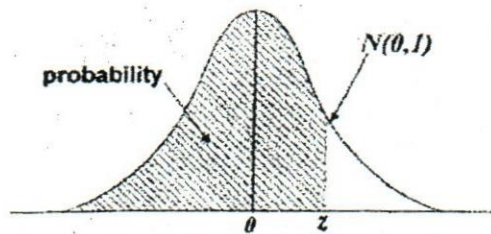
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## The Standardised Normal Distribution Table



The distribution tabulated is that of the normal distribution with mean **zero** and standard deviation **1**. For each value of **Z**, the standardized normal deviate, (the proportion **P**, of the distribution less than **Z**) is given. For a normal distribution with mean  $\mu$  and variance  $\sigma^2$  the proportion of the distribution less than some particular value **X** is obtained by calculating  $Z = (X - \mu) / \sigma$  and reading the proportion corresponding to this value of **Z**.

Z	P	Z	P	Z	P
-4.00	0.00003	-1.00	0.1587	1.05	0.8531
-3.50	0.00023	-0.95	0.1711	1.10	0.8643
-3.00	0.0014	-0.90	0.1841	1.15	0.8749
-2.95	0.0016	-0.85	0.1977	1.20	0.8849
-2.90	0.0019	-0.80	0.2119	1.25	0.8944
-2.85	0.0022	-0.75	0.2266	1.30	0.9032
-2.80	0.0026	-0.70	0.2420	1.35	0.9115
-2.75	0.0030	-0.65	0.2578	1.40	0.9192
-2.70	0.0035	-0.60	0.2743	1.45	0.9265
-2.65	0.0040	-0.55	0.2912	1.50	0.9332
-2.60	0.0047	-0.50	0.3085	1.55	0.9394
-2.55	0.0054	-0.45	0.3264	1.60	0.9452
-2.50	0.0062	-0.40	0.3446	1.65	0.9505
-2.45	0.0071	-0.35	0.3632	1.70	0.9554
-2.40	0.0082	-0.30	0.3821	1.75	0.9599
-2.35	0.0094	-0.25	0.4013	1.80	0.9641
-2.30	0.0107	-0.20	0.4207	1.85	0.9678
-2.25	0.0122	-0.15	0.4404	1.90	0.9713
-2.20	0.0139	-0.10	0.4602	1.95	0.9744
-2.15	0.0158	-0.05	0.4801	2.00	0.9772
-2.10	0.0179	0.00	0.5000	2.05	0.9798
-2.05	0.0202	0.05	0.5199	2.10	0.9821
-2.00	0.0228	0.10	0.5398	2.15	0.9842
-1.95	0.0256	0.15	0.5596	2.20	0.9861
-1.90	0.0287	0.20	0.5793	2.25	0.9878
-1.85	0.0322	0.25	0.5987	2.30	0.9893
-1.80	0.0359	0.30	0.6179	2.35	0.9906
-1.75	0.0401	0.35	0.6368	2.40	0.9918
-1.70	0.0446	0.40	0.6554	2.45	0.9929
-1.65	0.0495	0.45	0.6736	2.50	0.9938
-1.60	0.0548	0.50	0.6915	2.55	0.9946
-1.55	0.0606	0.55	0.7088	2.60	0.9953
-1.50	0.0668	0.60	0.7257	2.65	0.9960
-1.45	0.0735	0.65	0.7422	2.70	0.9965
-1.40	0.0808	0.70	0.7580	2.75	0.9970
-1.35	0.0885	0.75	0.7734	2.80	0.9974
-1.30	0.0968	0.80	0.7881	2.85	0.9978
-1.25	0.1056	0.85	0.8023	2.90	0.9981
-1.20	0.1151	0.90	0.8159	2.95	0.9984
-1.15	0.1251	0.95	0.8289	3.00	0.9986
-1.10	0.1357	1.00	0.8413	3.50	0.99977
-1.05	0.1469			4.00	0.99997



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Year I Semester II

SEMESTER END EXAMINATION

English for Business – BSCM1212

- This paper consists of FIVE (05) questions on TWELVE (12) pages.
- Answer ALL questions.
- Only Non-programmable calculators are allowed.
- You may use appropriate graphs, diagrams, equation/s to prove or justify the answers.
- If you have any doubt as to the interpretation of the wording of a question, make your own decision, but clearly state it on the script.
- Write legibly.
- Supporting documents are attached.

Date: 2019.01.07

Pass mark: 40%

Time: 02 Hours

**Question 01:**

**Read the following article about the Ansoff Growth Matrix and answer the given questions.**

**The Ansoff Growth Matrix**

An Ansoff Matrix which is also sometimes referred to as Ansoff Growth Matrix or Ansoff's Matrix has its roots in a paper written in 1957 by Igor Ansoff. In the paper he proposed that product marketing strategy was a joint work of four growth areas: market penetration, market development, product development and diversification. When displayed visually, these four areas create the Ansoff growth Matrix. As part of a larger strategic planning initiative, an Ansoff matrix is a communication tool which helps you see the possible growth strategies for your organization.

The first quadrant in the Ansoff matrix is market penetration. It is often adopted as a strategy when the organization has an existing product with a known market and needs a growth strategy within the market. The best example of such a scenario is the telecom industry. Most telecom products exist in the market and must cater to that market. In such cases competition is intense. This means that in order to grow, the organization may have to go out of its way to increase market share.





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Market development is the second market development growth strategy in the Ansoff matrix. This strategy is used when the firm targets a new market with existing products. There are several examples. These include Adidas, Nike and Reebok which have entered international markets for expansion. These companies continue to expand their brands across new global markets. That's the perfect example of market development. For a smaller enterprise, this strategy entails expanding from a current market to another market where its product does not currently compete.

Product development in the Ansoff matrix refers to firms which have a good market share in an existing market and therefore might need to introduce new products for expansion. Product development is needed when the company has a good customer base and knows that the market for its existing product has reached saturation. In this case, the market penetration strategy is no longer practical. A new product development strategy that caters to the existing market is a better approach.

The diversification strategy in the Ansoff matrix applies when the product is completely new and is being introduced into a new market. An example diversification is Samsung. It began as a trading company, later expanding into insurance, securities, and retail. Today, it is mostly known for its electronics division. This group initially started with one product, a black and white television set. It entered the telecom market in 1980 developing telephone switch boards, then later into telephones, fax machines and mobile phones. Samsung now has a market presence in diversified global set of businesses including semi-conductors, appliances, cameras, watch making, apparel, music services, cloud computing and home automation.

[ *For summarizing* ] The product-market matrix is one of the most intuitive and flexible strategic frameworks, applied by planners and decision makers in organizations of all sorts and sizes. The ideal time to use the framework is at the start of the planning cycle or to help in making tough decisions about business focus. The matrix presents a structured approach to investigate and prioritize four basic strategic options for expanding a business. The method typically starts with what is and ends with what is imaginable. Risk increases as strategy moves further from the current situation. The method involves four steps viz. diagnose, envision, decide and design. A company with multiple offerings is advised to consider each product/ service for analysis at first. Next consider each of the four strategic options beginning in the lower left quadrant. The prime questions are: should the offering/ product stay the same or should it change or should we focus on current customers or new ones. After, assess the attractiveness of each of the





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four strategic options, in most cases the easiest path as the top priority is pursued. Finally, build a clear action plan to implement the chosen strategy.

**Write whether the following statements are true or false. (10 marks)**

- (a) Ansoff matrix provides a framework for the marketers to devise strategies for future growth .....
- (b) Thinking up strategies and focusing on expanding the sales of an existing product in the existing market is market penetration. ....
- (c) Adding a new feature or a new use, putting an existing product into an entirely new market is market development. ....
- (d) Even after saturation point, with a well-planned market penetration strategy, the product can be sold in the existing market. ....
- (e) The planning of selling completely different products to known customers is called diversification. ....

**Find similar words from the passage for the following words. (05 marks)**

- (f) Making a way through something - .....
- (g) A new plan - .....
- (h) A quarter of something - .....
- (i) Plans to achieve something - .....
- (j) No new customers can be found - market .....

Write a summary of the last paragraph in the above article using less than 50 words. Do not exceed the word limit. (05 marks)

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## Question 02

(i). a. List 4 characteristics of business letter writing

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b. Briefly explain two principles of effective business correspondence.

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c. Substitute better words for the following stuffy and pompous phrases.

Due to the fact that - .....

With the possible exception of - .....

In spite of the fact that - .....

In the majority of situations - .....



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d. What type of letter should you write to get information of a product

.....

e. Are the following sentences true or false.

- Giving more information is a feature of business letters.

.....

- Get to the point as quickly as possible in business letters.

.....

(10 Marks)

(ii). Imagine you are the CEO of a large scale garment factory. You have decided to export your garments to PLATOON Fashion Store in USA. Write a letter to the Managing Director of the above Fashion Store including the following details:

- a brief introduction of the garment factory
- the range of products
- assure quality
- request for an appointment

Use about 100 words

(10 Marks)

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## Question 03

(i). a. What is a profile? .....

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.....

b. Explain briefly two features of a covering letter.

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.....  
.....  
.....

c. What do you call curriculum vitae in American English?

.....

d. Why do companies sometimes request referees/ references?

.....  
.....

e. Rewrite correcting the following phrases.

Look forward to hear from you - .....

Your's sincerely - .....

(10 Marks)



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- (ii). You saw the following advertisement in the newspaper. Write a suitable covering letter to be sent along with the cv. **(Do not write a cv).**

(10 Marks)

.....

[Use a separate sheet]

### Vacancy - Junior Inventory Executives

We, Eurosol Group are one of the largest consumer goods design, product development and sourcing, virtual manufacturing and distribution business partner. We work with leading global retailers and brands and specialize in delivering world class products at competitive prices. We provide complete sourcing solutions to our global customers managing each step in the global supply chain process for major retailers and brands.

Due to the expansion of business activities the above vacancies exist in our Malabe office at Millennium Drive.

#### **Qualifications and experience**

- Fully or partly qualified in the relevant field/ a degree would be an added advantage
- Excellent analytical thinking, data collection, problem structuring and solving skills
- Experience in handling annual stock verifications

An attractive remuneration package will be offered to the right candidate.

Please write to:     HR Manager  
Eurosol Group, Millennium Drive  
Malabe





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## Question 04

- (a) Explain the difference between skimming and scanning in reading. (05 marks)

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- (b) Read the following extracts and answer the questions given. (10 marks)

- (i). Interest will be charged if full payment is not made on the due date or if part of minimum payment is made before, on or after due date or full payment is made after the due date.

A customer's minimum payment Rs.24, 578.00 is due on 25<sup>th</sup> January 2019, he deposits Rs.10 000.00 on 19<sup>th</sup> January, Rs.14 500.00 on 25<sup>th</sup> January and Rs.15 000.00 on 26<sup>th</sup> January. Will he be charged interest? .....

- (ii). An estimated 90 percent of all marine life is concentrated about continental shelves which represent only 10 percent of the total ocean area.

What is the percentage of marine life beyond continental shelves? .....

- (iii). The World Conservation Strategy (1980) argued that had stocks not been damaged by overfishing, world yields in 1980 would have been 15 to 20 million tonnes higher.

If there was no overfishing and the world yields in 1979 were 7985 tonnes, what would have been the yields in 1980? .....

- (iv). As I need an iron on a daily basis and it was not clear how long a repair



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would take, the option for repair was unsatisfactory.

Why was the option of repair unsatisfactory? Because .....

- (v). At the beginning of the period the proportion of expenditure on food was more than three times as high as that in all the other categories representing more than thirty percent of household expenditure.

According to above description which one of the following categories - housing, clothing, transport, fuel and food- represented more than thirty percent of household expenditure? .....

- (c) Read the following short passage and underline the two sentences that are correct according to the paragraph. (05 marks)

To be successful, a company should have a portfolio of products with different growth rates and different market shares. The portfolio composition is a function of the balance between cash flows. High growth products require cash inputs to grow. Low growth products should generate excess cash. Both kinds are needed simultaneously.

**Underline the two sentences which are correct.**

- (i). A company with a wider portfolio of products is most likely to fail in the long run.
- (ii). A range of products with different growth rates and different market shares is a sound marketing strategy.
- (iii). The products that should generate surplus cash is high growth products.
- (iv). Provided there is more and more investment, the high growth products will steadily flourish.





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## Question 05

- (a) **Read the following answers given by an interviewee at an interview and form the interviewer's questions. Look at the example.** (10 marks)

**Example:** Interviewer : *What were your duties there?*

Interviewee : Well, basically I did everything from taking calls to responding to emails and maintaining the website.

Interviewer : (i) .....

Interviewee : I'm Rohan from Kandy. I had my education at Kingswood and graduated from University of Peradeniya. I worked as a merchandiser for a short time.

Interviewer : (ii)..... ?

Interviewee : As a merchandiser, I collaborated with suppliers, manufacturers and the stores to ensure proper execution of plans.

Interviewer : (iii)..... ?

Interviewee : I came to know about your company when I was surfing the Net looking for merchandising companies.

Interviewer : (iv)..... ?

Interviewee : My goal in the future is to specialize in merchandising and retail marketing.

Interviewer : (v)..... ?

Interviewee : I decided to join your company because this one of the leading companies in the country and there are better prospects for the employees.



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**(b). Write five sentences to bring out the meaning of five of the following terms. Do not use pronouns in sentences. (2 x 5 marks)**

matrix      growth      decline      represent      bankrupt  
quadrant      annul      expire      resume      referee

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-----**END OF THE QUESTION PAPER**-----



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Year I Semester II  
 SEMESTER END EXAMINATION  
 Macroeconomics – BSCMI213

- This paper consists of SEVEN (07) questions on SIX (06) pages.
- Answer FOUR (04) questions including question 01.
- Only Non-programmable calculators are allowed.
- You may use appropriate graphs, diagrams, equation/s to prove or justify the answers.
- If you have any doubt as to the interpretation of the wording of a question, make your own decision, but clearly state it on the script.
- Write legibly.

Date: 2019.01.11

Pass mark: 40%

Time: 02 Hours

**Question 01: (Compulsory)**

- (a) Briefly explain the definition of Macroeconomics. (04 Marks)
- (b) Identify 04 Macroeconomic variables in the economy (04 Marks)
- (c) Briefly explain the importance of macroeconomic variables to the Supply Chain Industry (take at least 02 variables) (04 Marks)
- (d) Briefly explain 02 economic terms in the Economic Cycle. (04 Marks)
- (e) Briefly Explain 05 Sector Model in Open Economy. (04 Marks)
- (f) Identify the trend of Gross Domestic Production in Sri Lanka (Use the data of 2016 and 2017) (05 Marks)





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## Question 02

(a) The national data details were shown below of a hypothetical economy.

Description	Value
Tax	100
Subsidies	75
Manufacture of Other Non-metallic Mineral Products	70
Electricity, Gas, Steam and Air Conditioning Supply	55
Mining and Quarrying	60
Animal Production	40
Construction	80
Private Services	60
Government Services	110
Manufacturing and Quarrying	240
Agriculture, Livestock and Forestry	320
Hotels and Restaurants	60
Transport and Communication	50
Factor Income from Abroad	70
Electricity, Gas and Water	80
Human Health Activities, Residential Care and Social Work Activities	20
Factor spending for Abroad	50
Banking, Insurance and Real Estate	20
Depreciation	80

You are required to calculate,



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- (i) Sum of value added by service sector
- (ii) Gross Domestic Production
- (iii) Gross National Production
- (iv) GDP under Market Price
- (v) Net Domestic Production

(04 Marks each)

- (b) Briefly Explain the term of Net Factor Income Abroad and its trends according to the Sri Lankan economy. (05 Marks)

### Question 03

- (a) Assume a hypothetical economy price index, Base Year is 2014. Basket of goods costs is USD 1,500 in year 2014. The same basket cost is USD 1,750 in 2015. Calculate the consumer price index (05 Marks)
- (b) Demand-pull inflation may be caused by "a reduction in interest rates" explain the statement with the aid of a diagram. (05 Marks)
- (c) Briefly explain the term of "Frictional Unemployment" with the aid of an example. (05 Marks)
- (d) Even low inflation rate can pose a threat to new investments. Briefly explain the statement. (05 Marks)
- (e) Illustrate two main causes of demand pull and cost push inflation with the use of graphs (05 Marks)

### Question 04

- (a) Briefly explain the causes of Structural Unemployment of an economy. (04 Marks)
- (b) What is likely to happen of unemployment during a recession or depression in the economy? (04 Marks)





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- (c) Briefly explain the effects of increasing minimum wage in the logistics and distribution sector. (05 Marks)
- (d) Give your opinion and forecast the Job opportunities in Research and Consultancy services in Supply Chain Industry (05 Marks)
- (e) Discuss the Trend and Nature of Unemployment in Sri Lanka according to the Sri Lankan labour force survey (07 Marks)

### Question 05

- (a) Briefly explain the evolution of money in the economic system (05 Marks)
- (b) Briefly explain the functions of Central Bank of Sri Lanka (05 Marks)
- (c) Describe the main functions of a Commercial Bank (05 Marks)
- (d) Identify the deference between NRFC and RFC account. (05 Marks)
- (e) Briefly explain the effects of printing money in the economy (05 Marks)

### Question 06

- (a) Suppose that the following equations describe the economy of the country of Germany,

$$C = 400 + 0.4(Y - T) \quad I P = 200 \quad G = 200 \quad NX = 40 \quad T = 0 \quad Y^* = 1500$$

Use this information to find each of the following:

- a. Autonomous expenditure.
  - b. The multiplier.
  - c. Short-run equilibrium output.
  - d. The output gap. (12 Marks)
- (b) Imagine an economy defined by the following:  
 $C = 140 + 0.9(Y_d)$ .



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This is the consumption function where 140 is autonomous consumption, 0.9 is the marginal propensity to consume, and  $Y_d$  is disposable (i.e. after tax income).

$Y_d = Y - T$ , where  $Y$  is national income (or GDP) and  $T = \text{Tax Revenues} = 0.3Y$ ; note that 0.3 is the average income tax rate.

$I = \text{Investment} = 400$

$G = \text{Government spending} = 800$

$X = \text{Exports} = 600$

$M = \text{Imports} = 0.15Y$

- i. Determine the aggregate expenditure function. Using the numbers from above and solve  $Y$ .
- ii. Assume that, because of changes in the relative prices of domestic and foreign goods, the marginal propensity to import falls to 0.1. Calculate the equilibrium output when the marginal propensity to import is changed to 0.10.
- iii. Consider a family with a household income of Rs: 100,000, and the family has an effective income tax rate of 25%. Calculate the disposable income. (09 Marks)

(c) Briefly explain the terms of Aggregate demand and Aggregate Supply (04 Marks)





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## Question 07

**Write short notes for any five (05) of the following**

- (a) Economic Growth and Economic Development
- (b)  $M_1$  and  $M_2$
- (c) Deferred Payment
- (d) Human Development Index and Physical Quality Life Index
- (e) Cost Push Inflation
- (f) Seasonal Unemployment
- (g) Fiscal Policy
- (h) Consumer Price Index

(05 Marks Each)

-----END OF THE QUESTION PAPER-----