



PAST PAPERS

Faculty	Department / Section/Division
Not Applicable	Learning Resource Centre

Past Papers

**Education & Training Course: B.ED
(HONOURS) In Information Technology**

(Year 3 – Semester I)

2021 - 2022

Document Control & Approving Authority	Senior Director – Quality Management & Administration
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END SEMESTER EXAMINATION QUESTION PAPER

CODE - QP

Approved for Quality Management System

EDUCATION & TRAINING COURSE: B.ED (HONOURS) IN INFORMATION TECHNOLOGY

COURSE CODE: LC - 0851

YEAR III - SEMESTER I

OPERATING SYSTEMS - BD15124

Faculty	Department / Section / Division
Humanities and Education	Education

INSTRUCTIONS TO CANDIDATES	Date of the examination: 2022/01/26
Candidates could be disqualified if you violate examination rules.	Duration of the examination = 03 hours
Candidates are not allowed to communicate with and disturb fellow candidates during the examination.	Total Marks = 100 marks
Answer only in English.	

IMPORTANT :

Answer four(4) questions only. Question 1 is compulsory and select 3 questions out of remaining seven (7) questions from Question 2 to Question 8.

Question 01 (Compulsory)

- (i) Define the term Operating system and state three (3) goals of an OS. (5 Marks)
- (ii) Draw the abstract view of components of computer system. (5 Marks)
- (iii) Define the terms Logical address and physical address. (5 Marks)
- (iv) Consider the following set of processes, with the arrival times and the CPU-burst times given in milliseconds.

Process	Arrival Time	Burst Time
P1	0	5
P2	1	3
P3	2	3
P4	4	1

What is the average turnaround time for these processes with the preemptive shortest remaining processing time first (SRPT) algorithm ? Draw the Gantt chart.

(10 Marks)

(Total marks =25)

Question 02

- (i) State five(5) purposes of an OS. (5 Marks)
- (ii) Briefly explain what is microkernel architecture of an OS. (5 Marks)
- (iii) Draw the process state transition diagram. (5 Marks)
- (iv) State four(4) details included in the Process Control Block (PCB). (4 Marks)
- (v) Explain the two process communication models : shared memory and message passing. Draw the relevant models. (6 Marks)

(Total marks =25)

Question 03

- (i) Define two types of parallelism. (4 Marks)
- (ii) Briefly explain Many-to-one multithreading model. Illustrate the model with a diagram. (6 Marks)
- (iii) State the three(3) requirements for the solution of a critical-section problem. (3 Marks)
- (iv) Write simple definitions for the following terms.
 - a) Semaphore
 - b) Deadlock

- c) Cooperating processes
- d) Race condition

(12 Marks)

(Total marks =25)

Question 04

- (i) What is CPU scheduler? Define the term and state 2 incidents that CPU scheduler make decisions. (4 Marks)
- (ii) State the five(5) CPU scheduling criteria. (5 Marks)
- (iii) Consider the following set of processes, with the CPU-burst times given in milliseconds. Assume that all the processes arrive when clock is 0, simultaneously.

Process	Burst Time
P1	6
P2	8
P3	7
P4	3

What is the average waiting time for the processes with the Shortest Job First (SJF) algorithm ? Draw the Gantt chart.

(8 Marks)

- (iv) Consider the following set of processes, with the CPU-burst times given in milliseconds and the priority for each process. Assume that all the processes arrive when clock is 0, simultaneously.

Process	Burst Time	Priority
P1	10	3
P2	1	1
P3	2	4
P4	1	5
P5	5	2

What is the average waiting time for the processes with the priority scheduling algorithm ?
Draw the Gantt chart.

(8 Marks)

(Total marks =25)

Question 05

(i) State the four(4) conditions which causes a deadlock when hold simultaneously.

(4 Marks)

(ii) State the two(2) methods for handling deadlocks.

(4 Marks)

(iii) State two(2) recovery methods from deadlocks.

(4 Marks)

(iv) Answer (a) and (b) parts based on the description given below.

- One instance of R1
- Two instances of R2
- One instance of R3
- Three instance of R4
- T1 holds one instance of R2 and is waiting for an instance of R1
- T2 holds one instance of R1, one instance of R2, and is waiting for an instance of R3
- T3 is holds one instance of R3

a) Draw the resource allocation graph for the given description.

(10 Marks)

b) State whether the above drawn resource allocation graph in part (a) consists a deadlock or not.

(3 Marks)

(Total marks =25)

Question 06

(i) State the purpose of the Memory Management Unit(MMU).

(2 Marks)

(ii) Define the terms static linking and dynamic linking.

(4 Marks)

(iii) Briefly describe the terms best-fit, first-fit and worst-fit.

(9 Marks)

(iv) Explain the concept of paging and define the terms page table, page number and page offset.

(10 Marks)

(Total marks =25)

Question 07

- (i) Write five(5) attributes of files in an OS. (5 Marks)
- (ii) State five(5) operations of OS files. (5 Marks)
- (iii) Write three(3) benefits of having file directories. (6 Marks)
- (iv) Draw the structure of layered file system in a flowchart. (6 Marks)
- (v) Define the term consistency checking. (3 Marks)

(Total marks =25)

Question 08

- (i) Briefly describe the three(3) ways how computers access the storage. (9 Marks)
- (ii) Write definitions for the following terms. (8 Marks)
 - a) Buffering
 - b) Caching
 - c) Spooling
 - d) Blocking
- (iii) Define what is an attack and a threat. (4 Marks)
- (iv) What is called as a privilege in the access control by OS. (4 Marks)

(Total marks =25)

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



FINAL EXAMINATION QUESTION PAPER

CODE -QP

Approved for Quality Management System

EDUCATION & TRAINING COURSE-ED (HONOURS) IN INFORMATION TECHNOLOGY
 COURSE CODE:LC-0851
 SUBJECT: COMPARATIVE EDUCATION - BDP4073

Faculty	Department / Section/Division
Humanities and Education	Education

INSTRUCTIONS TO CANDIDATES	Date: 07.02.2022
Answer any five questions only.	Duration of the examination = 03 hours
Total Marks = 100	Candidates could be disqualified if you violate examination rules.
	Candidates are not allowed to communicate with and disturb fellow candidates during the examination.

Answer any FIVE questions only

Question 1

Prospective teachers should have a thorough understanding of Comparative Education since it evaluates different education systems.

- (i) Define the term Comparative Education. (4 marks)
- (ii) Explain the scope of Comparative Education, (7 marks)
- (iii) Discuss the four benefits of studying Comparative Education. (9 marks)

Question 2

Some factors that influence the education system are dominant in one particular system while in another system, they would be less dominant.

- (i) Explain **three factors** that influence the education systems of the world. (6 marks)
- (ii) "The political philosophy which controls the government of a country often has its inevitable impact on education." Do you agree with the statement? Discuss. (7 marks)

(iii) "Technology and especially modern technology also influence the education system of the country" Elucidate. (7 marks)

Question 3

Race, religion and language have an impact on the education in plural societies.

- (i) What is a pluralistic society? (4 marks)
- (ii) Explain Multi lingual education. (7 marks)
- (iii) "It is argued that the teaching of the multi-religious curriculum has contributed to the development of children's values and moral standards" Discuss this statement. (9 marks)

Question 4

Globalization is the system of interaction among the countries of the world in order to develop the global economy.

- (i) Explain the relationship between globalization and education (6 marks)
- (ii) Discuss the aims of global education. (7 marks)
- (iii) "Some concerns in internationalization of education can be identified as cultural issues." Discuss. (7 marks)

Question 5

21st century educators have to pay keen attention to curriculum, teacher quality and assessment.

- (i) Explain the skills of the 21st century educator (6 marks)
- (ii) Discuss the challenges in the 21st century education (7 marks)
- (iii) "Teaching is changing for the 21st century educator." Elucidate. (7 marks)

Question 6

The arrivals of Ariyans to Sri Lanka from India led to the inclusion of many Indian traditions in the ancient system of education.

- (i) Explain the structure of the indigenous system of education in ancient Sri Lanka? (6 marks)
- (ii) Discuss the major feature of Dutch education. (7 marks)

- (iii) "During the Portuguese period, education remained as a privilege of the elite" Elucidate this statement. (7 marks)

Question 7

Recommendations of Colebrooke and Morgan Committees are milestones in British colonial education

- (i) Discuss the recommendations of the Colebrooke Commission on education (6 marks)
- (ii) Discuss the recommendations of the Morgan Committee report of 1867 (7 marks)
- (iii) Discuss the shortcomings of the existing system of Education commented by the 1943 Education Committee. (7 marks)

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



END SEMESTER EXAMINATION QUESTION PAPER

Code - QP

Approved for Quality Management System

EDUCATION & TRAINING COURSE: B.ED (HONOURS) IN INFORMATION TECHNOLOGY

COURSE CODE: LC - 0851

YEAR III - SEMESTER I

SUBJECT: PHYSICAL EDUCATION - BDP5152

Faculty	Department / Section/Division
Humanities and Education	Education
INSTRUCTIONS TO CANDIDATES	Date of the examination 2021.01.26
Candidates could be disqualified if you violate examination rules.	Duration of the examination = 03 hours
Candidates are not allowed to communicate with and disturb fellow candidates during the examination.	Total Marks = 100 marks

Answer only four questions

QUESTION 1

- Draw a diagram of the human skeleton and label it. (10 Marks)
- Explain the functions of body plane and axis with the help of a diagram. (15 Marks)

QUESTION 2

- Explain the fundamental anatomical movements of the human body (10 Marks)
- Illustrate the body movements at the major joints of the human body (15 Marks)

QUESTION 3

- What are heart rate zones? (10 Marks)
- Explain the "Skill related physical fitness" in brief. (15 Marks)

QUESTION 4

- What are the signs and symptoms of Vitamin A Deficiency? (10 Marks)
- Explain the importance of healthy food for students. (15 Marks)

QUESTION 5

5. Write short notes on any **five** of the following (25 Marks)

- a. Self-confidence.
- b. Sportsmanship.
- c. Self-direction.
- d. Social understanding.
- e. Emotional maturity.
- f. Peer respect.

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

END SEMESTER EXAMINATION QUESTION PAPER

CODE - QP

Approved for Quality Management System

EDUCATION & TRAINING COURSE: B.ED (HONOURS) IN INFORMATION TECHNOLOGY

COURSE CODE: LC - 0851

YEAR III - SEMESTER I

DATABASE MANAGEMENT SYSTEMS - BDI5114

Faculty	Department / Section / Division
Humanities and Education	Education

INSTRUCTIONS TO CANDIDATES	Date of the examination: 2022.01.21
Candidates could be disqualified if you violate examination rules.	Duration of the examination = 03 hours
Candidates are not allowed to communicate with and disturb fellow candidates during the examination.	Total Marks = 100 marks

- There are EIGHT (08) questions in this paper.
- This paper contains five (05) pages.
- Excluding the Compulsory question-answer any four (04) 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

Question 01: (Compulsory)**(20 Marks)**

- (a) What is a Database? (02 Marks)
- (b) List 3 disadvantages of keeping organizational information in a file processing system (02 Marks)
- (c) What is Data Model (03 Marks)
- (d) What is data independence? (04 Marks)
- (e) Describe the five components of the DBMS environment and discuss how they relate to each other. (04 Marks)
- (f) Briefly explain the "integrity rules" (05 Marks)

Question 02**(20 Marks)**

Consider the relation for published books:

Book(Book_Title, Authurname, Book_type,Listprice,Author_affil, Publisher)

Suppose the following dependencies exist:

Book_Title \rightarrow Publisher, Booktype

Book_type \rightarrow Listprice

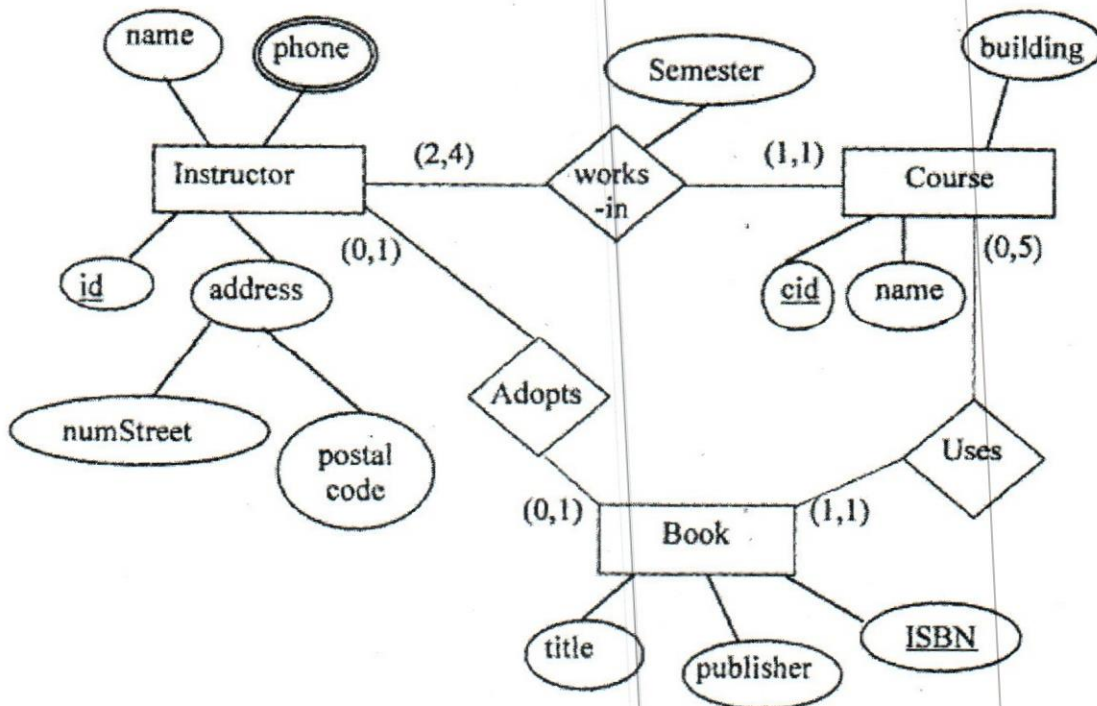
Authurname \rightarrow Author_affil

The key for this relation is Book_title, Authurname

Decompose the relation into 3NF. For each step of the decomposition procedure, state what functional dependency it is based on, and give the relation schemas after the step has been carried out. State the relation instances in your 3NF schema corresponding to the above instance.

Question 03**(20 Marks)**

Convert the following ER diagram to the relational model. You do not need to specify the domains of attributes. State any assumption/s you made.



Question 4**(20 Marks)**

Draw the ER diagram to model the following real world situation. Show the entities, attributes, relationships, cardinalities, keys, weak entities etc. wherever applicable.

- For each bank, unique bank code, name and address are to be recorded. A bank can have several branches.
- The branches of banks have branch number and address. Branch number is unique only among the branches of a particular bank.
- Customers are uniquely identifies by customer id, the name, phone and address of customers are to be recorded.
- Each branch may have many accounts held by customers. Each account is identified by an unique account number. The current balance and type of the account are to be recorded. A customer may hold several accounts and each account may be held by one or more customers.
- Each branch may advance loans to customers. Each loan is uniquely identified in the database by a loan number. The type and amount of loan are the details to be recorded. A customer may have several loans and each loan can advanced to one or more customers.

Question 05**(20 Marks)**

Consider the following relation with the given primary key: It refers to a machine shop where jobs are processed.

MJOB(Machine#, Job#, JobDeadLine, Operator#, OperatorType, Hour, MachineType)

It has the following dependencies.

Job# -> JobDeadline

Machine# -> MachineType

Operator# -> OperatorType

- What normal form is the above relation in and why?
- Show by successive decomposition based on primary keys, how you transform it into 3NF relations. At each step, show what test is applied and what unwanted dependencies are removed.
- At the end of your decompositions, is each resulting final relation in 2NF or 3NF? Why or Why not?

Question 06**(20 Marks)**

The questions given below are based on the following relational schema:

Person (name, NI#, address)

Car(year, model, license)

Accident(date, driver, damage_amount)

Owns(NI#, license)

Log(license, date, driver)

Primary key(s) underlined.

Write SQL for the following:

- (a) Find the license details and models details for the cars, which were manufactured after 2002. (4 Marks)
- (b) Find the total number of people whose car was in an accident in 2005. (5 Marks)
- (c) Find the total amount of cost incurred in every respective day. Display the result in least cost to higher cost. (3 Marks)
- (d) Find the number of accidents in which John Smith's car was involved. (3 Marks)
- (e) Add a new customer to the database for the following detail: Customer name - Woody Pecker, Address - 99 Moutain Rock Avenue, and Identification number - 826580559v (5 Marks)

Question 07

(20 Marks)

Consider the following schema and specify the queries in Relational Algebra.

Athlete (AName, Age, Country)

Events (EName, Type, Location, Time)

Competes (AName, EName, Score)

- (a) Print all tuples in athlete where the age is more than 25 years. (1 Mark)
- (b) Print the names of all athletes who are from Sri Lanka. (2 Marks)
- (c) Print names of all motocross events. (4 Marks)
- (d) Print complete information about all skateboarding events, i.e. tuples with attributes AName, Age, Country, EName, Location, Time and score where the athlete competed in the event. (4 Marks)
- (e) Print the names of all athletes who are not competing in any event. (4 Marks)

- (f) Print the countries that have some athlete competing in every event. (You may assume that every EName in Event occurs in Competes). (5 Marks)

Question 8**(20 Marks)**

Define each of the following database terms accurately and concisely. Give an example for each.

- (a) Weak entity
- (b) ACID property
- (c) Recursive entity
- (d) Derived attribute
- (e) Foreign key

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

Library

00017



END SEMESTER EXAMINATION QUESTION PAPER

CODE - QP

Approved for Quality Management System

EDUCATION & TRAINING COURSE: B.ED (HONOURS) IN INFORMATION TECHNOLOGY

COURSE CODE: LC - 0851

YEAR III - SEMESTER I

NETWORK DESIGN AND MANAGEMENT - BDI 5134

Faculty	Department / Section/Division
Humanities and Education	Education

INSTRUCTIONS TO CANDIDATES	Date of the examination: 2022.01.19
Candidates could be disqualified if you violate examination rules.	Duration of the examination = 03 hours
Candidates are not allowed to communicate with and disturb fellow candidates during the examination.	Total Marks = 100 marks

**Including the Compulsory question answer four questions
A number of eight (08) questions are indicated in two (02) pages**

Question 01 (Compulsory Question)

What is 'VTP' in a Computer Network? Explain in detail with diagrams (Total marks =25)

Question 02

- (i) How is 'TCP' different from 'UDP'? (10 marks)
- (ii) Explain 'three-way handshake' (15 marks)

(Total marks =25)

Question 03

- (i) Explain the 'TCP States' in detail (10 marks)
- (ii) Through a diagram indicate 'TCP format' and discuss briefly (15 marks)

(Total marks =25)

Question 04

- (i) Explain 'STP' in detail
- (ii) How is a 'Root ID' different from a 'Bridge ID' in STP

(10 marks)

(15 marks)

(Total marks =25)

Question 05

- (i) How is a 'STP Root' been calculated?
- (ii) How is 'DMZ' different from 'SF' in a Data Centre?

(10 marks)

(15 marks)

(Total marks =25)

Question 06

- (i) Explain 'Core', 'distribution' and 'access' layers in a computer network
- (ii) How is 'IPS' different from 'IDS'?

(10 marks)

(15 marks)

(Total marks =25)

Question 07

- (i) Discuss the difference between 'Layer 02 switches' and 'Layer 03 switches'
- (ii) Discuss about 'Routing Protocols' and explain the use of it

(10 marks)

(15 marks)

(Total marks =25)

Question 08

- (i) Can a 'LAN' be situated inside a 'MAN'? Justify the answer
- (ii) Is 192.168.100.11 / 30 a 'broadcast address'? Justify the answer

(10 marks)

(15 marks)

(Total marks =25)

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



FINAL EXAMINATION QUESTION PAPER

CODE -QP

Approved for Quality Management System

EDUCATION & TRAINING COURSE-BED (HONOURS) IN INFORMATION TECHNOLOGY

COURSE CODE : LC-0851

YEAR III- SEMESTER I

SUBJECT: SOFT SKILLS FOR TEACHERS - BDP5132

Faculty	Department / Section/Division
Humanities and Education	Education

INSTRUCTIONS TO CANDIDATES	Date: 2022/01/18
Answer any five questions only.	Duration of the examination = 03 hours
Total Marks = 100	Candidates could be disqualified if you violate examination rules.
	Candidates are not allowed to communicate with and disturb fellow candidates during the examination.

Answer any five (05) questions only

Question 1

As a prospective teacher, it is essential to identify and accept the importance of soft skills for effectiveness in human relations.

- | | |
|--|-----------|
| (i) What are soft skills? | (4 marks) |
| (ii) Give four examples of soft skills | (4 marks) |
| (iii) Compare and contrast soft skills and hard skills | (6 marks) |
| (iv) "As a teacher you need to develop both hard skills and soft skills in tandem". Do you agree with this statement? Justify your answer. | (6 marks) |

Question 2

Novice teachers should be able to convey their thoughts with clarity and confidence both in written and oral forms of communication.

- | | |
|--|-----------|
| (i) What is communication? | (4 marks) |
| (ii) Explain the different categories of communication. | (5 marks) |
| (iii) How do you improve students' communication skills? | (5 marks) |

- (iv) "When we communicate, non-verbal cues can be as important, or in some cases even more important, than what we say" Elucidate this statement. (6 marks)

Question 3

In life as much as in work, it's important to know how to provide feedback to others.

- (i) What is feedback in communication? (3 marks)
(ii) Explain positive feedback. (4 marks)
(iii) Discuss the differences between positive and constructive feedback. (6 marks)
(iv) "Feedback should be about behaviour not the personality. Discuss. (7 marks)

Question 4

Due to barriers to communication, interpersonal communications may fail.

- (i) Identify **four** barriers to communication. (4 marks)
(ii) What is language barrier to communication? (4 marks)
(iii) Discuss the differences between psychological barrier and physiological barrier to communication. (6 marks)
(iv) "Systematic barriers in communication can occur in schools". Critically evaluate this statement. (6 marks)

Question 5

According to research, Emotional Intelligence (EI) helps to build strong relationships and succeed at school and work.

- (i) What is EI? (4 marks)
(ii) Explain four attributes of EI (5 marks)
(iii) Briefly explain the importance of teamwork. (5 marks)
(iv) As a teacher, how do you encourage teamwork among students? (6 marks)

Question 6

Flexibility and Adaptability in the classroom are two of most important qualities that every teacher must possess.

- (i) What is adaptability? (4 marks)
(ii) As a flexible and adaptable teacher, what are the categories of effective teaching? (5 marks)

- (iii) Classroom Management as a time management, compare allocated time and instructional time. (5 marks)
- (iv) "With the time management skills teachers can be very effective and efficient". Elucidate. (6 marks)

Question 7

Write short notes on **two** of the following.

(10 marks x 2)

- (i) Recommendations for teachers and parents for managing anger.
- (ii) Time Management Matrix by Stephen Covey.
- (iii) Importance of Emotional Intelligence in Teamwork.
- (iv) Critical thinking and problem-solving skills as soft skills for teachers.

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



MID SEMESTER EXAMINATION QUESTION PAPER

CODE - QP

Approved for Quality Management System

EDUCATION & TRAINING COURSE: B.ED (HONOURS) IN INFORMATION TECHNOLOGY

COURSE CODE: LC - 0851

YEAR III - SEMESTER I

NETWORK DESIGN AND MANAGEMENT - BDI5134

Faculty	Department / Section / Division
Humanities and Education	Education

INSTRUCTIONS TO CANDIDATES	Date of the examination: 2021.12.29
Candidates could be disqualified if you violate examination rules.	Duration of the examination = 1.5 hours
Candidates are not allowed to communicate with and disturb fellow candidates during the examination.	Total Marks = 100 marks

Total number of pages in the question paper is two (02)
There are four (04) questions in the examination paper
Answer all the questions

Question 01

- (i) Briefly explain Client Server Architecture (10 marks)
- (ii) With an example explain how default gateway redundancy can be achieved through HSRP (15 marks)

(Total marks =25)

Question 02

- (i) How is a Perimeter Firewall different from an Internal Firewall? Explain with a diagram (10 marks)
- (ii) How is an email server different from a web server? (15 marks)

(Total marks =25)

Question 03

- (i) How is "segment", "datagram", and "frame" different from each other? (10 marks)
- (ii) Through a diagram explain tagging and un-tagging in OSI layers (15 marks)

(Total marks =25)

Question 04

- (i) What is 3-way handshake?
- (ii) Explain DC and DR

(10 marks)

(15 marks)

(Total marks =25)

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



MID SEMESTER EXAMINATION QUESTION PAPER

CODE - QP

Approved for Quality Management System

EDUCATION & TRAINING COURSE: B.ED (HONOURS) IN INFORMATION TECHNOLOGY

COURSE CODE: LC - 0851

YEAR III - SEMESTER I

OPERATING SYSTEMS - BDI5124

Faculty	Department / Section / Division
Humanities and Education	Education

INSTRUCTIONS TO CANDIDATES	Date of the examination: 2021.12.29
Candidates could be disqualified if you violate examination rules.	Duration of the examination = 1 1/2 hours
Candidates are not allowed to communicate with and disturb fellow candidates during the examination.	Total Marks = 100 Marks

INDEX NUMBER:

For Office use Only

Question No:	1	2	3	Total Marks	%	Signature
For Scrutinizer's Use Only (marks)						
For Moderator's Use Only (marks)						

Answer all questions

Question 01

Select the most suitable answer (single choice) among the given answers.

Total marks = 30
(15 x 2 = 30) Marks

- What is a Operating system?
 - A collection of programs that manages hardware resources
 - System service provider for the application programs
 - Link to interface the hardware and application programs
 - All of the mentioned above

- What are the four components that a computer system can be divided into?
 - Hardware, Firmware, OS, Software
 - Hardware, OS, Application programs, users
 - Software, Users, Application Programs, OS
 - None of above

3. Which of the following is not a purpose of an OS.
 - A. Provide user interfaces
 - B. Manage program execution
 - C. Control I/O operations
 - D. Database management

4. What is incorrect about a time sharing OS?
 - A. Each task is given some time to execute so that all the tasks work smoothly.
 - B. Each user gets the time of CPU as they use a single system.
 - C. The tasks will be given always from a different users.
 - D. The time that each task gets to execute is called quantum.

5. What is the main function of the command interpreter?
 - A. to provide the interface between the API and application program
 - B. to handle the files in the operating system
 - C. to get and execute the next user-specified command
 - D. none of the mentioned

6. Traditionally Operating systems were written in:
 - A. Assembly languages
 - B. Low level languages
 - C. High-level languages
 - D. Tag languages

7. The core software components of an operating system are collectively known as:
 - A. Emulator
 - B. Kernel
 - C. Compiler
 - D. None of above

8. Which one of the following is not true?
 - A. kernel remains in the memory during the entire computer session
 - B. kernel is made of various modules which cannot be loaded in running operating system
 - C. kernel is the first part of the operating system to load into memory during booting
 - D. kernel is the program that constitutes the central core of the operating system

9. In a timeshare operating system, when the time slot assigned to a process is completed, the process switches from the current state to?
 - A. Suspended state

- B. Terminated state
 - C. Ready state
 - D. Blocked state
10. When a process is in a "Blocked" state waiting for some I/O service. When the service is completed, it goes to the _____?
- A. Terminated state
 - B. Suspended state
 - C. Running state
 - D. Ready state
11. A program in execution is known as a/an _____?
- A. process
 - B. job
 - C. task
 - D. application
12. Which is not a part of the process stored in the memory?
- A. Stack
 - B. Heap
 - C. Data
 - D. Values
13. Which of the following is not a queue for a process?
- A. Job queue
 - B. I/O queue
 - C. Device queue
 - D. Ready queue
14. Select the incorrect statement.
- A. if there are n deadlocks, the system is in a safe state.
 - B. A deadlock can be either prevented or avoided.
 - C. Kernel is the core component of OS.
 - D. OS is a piece of hardware that manage the system.
15. Which process can be affected by other processes executing in the system?
- A. cooperating process
 - B. child process
 - C. parent process
 - D. init process

Question 02**Total marks = 35**

1. Draw the process state diagram and explain each state and how a process transit among them. 15 marks
2. What is a process control block? State 3 fields of it PCB. 10 marks
3. Explain the two process communication models : shared memory and message passing. Draw the relevant models. 10 marks

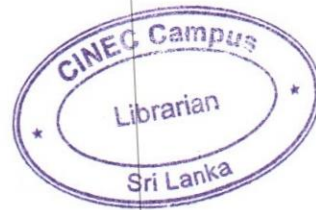
Question 03**Total marks = 35**

1. Write brief definitions for the following terms. 6 marks
 - a) Deadlock
 - b) Cooperating processes
 - c) Race condition
2. Consider the given ready queue status below. 14 marks

Process	Arrival time	Burst Time (milliseconds)
P1	2	24
P2	0	3
P3	1	3

- a) Draw the Gantt chart for FCFS and calculate average waiting time.
- b) Then consider all the processes arrive at the same time and then calculate the average waiting time for processes when scheduled as SJF.
3. Define the term CPU scheduler and define the two types of CPU scheduling. 10 marks
4. State the 5 CPU scheduling criteria. 5 marks

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



MID SEMESTER EXAMINATION QUESTION PAPER

CODE - QP

Approved for Quality Management System

EDUCATION & TRAINING COURSE: B.ED (HONOURS) IN INFORMATION TECHNOLOGY

COURSE CODE: LC - 0851

YEAR III - SEMESTER I

DATABASE MANAGEMENT SYSTEMS - BDI5114

Faculty	Department / Section/Division
Humanities and Education	Education

INSTRUCTIONS TO CANDIDATES	Date of the examination: 2020.12.28
Candidates could be disqualified if you violate examination rules.	Duration of the examination = 1.5 Hour
Candidates are not allowed to communicate with and disturb fellow candidates during the examination.	Total Marks = 20 Marks

INDEX NUMBER:

For Office use Only

Question No:	1	2	3	4	5	6	7	8	9	10	Total Marks	%	Signature
For Scrutinizer's Use Only (marks)													
For Moderator's Use Only (marks)													

Answer all questions

- How many Primary keys can have in a table?
 - Only 1
 - Only 2
 - Depends on no of columns
 - Depends on DBA

- The relational Algebra is a _____ Query language.
 - Structured
 - Procedural
 - Logical
 - Relational

3. Which data manipulation command is used to combines the records from one or more tables?
 - a. SELECT
 - b. PROJECT
 - c. JOIN
 - d. PRODUCT

4. Which of the following are the fundamental operations in the Relational Algebra?
 - a. Select and Project
 - b. Project and Cartesian product
 - c. Union and set Difference
 - d. All of the above

5. Suppose we wish to find all customers who have both a loan and an account. Which of the following operation allows us to produce this relation?
 - a. Set difference
 - b. Union
 - c. Cartesian product
 - d. Set intersection or set difference

6. Which of the following is not a DDL command?
 - a. TRUNCATE
 - b. ALTER
 - c. CREATE
 - d. UPDATE

7. SQL Views are also known as
 - a. Simple tables
 - b. Virtual tables
 - c. Complex tables
 - d. Actual tables

8. What does the following relational algebra expression do?
 $\sigma_{\text{amount} > 1200}(\text{loan})$
- Finds all the tuples in loan
 - Finds the tuples in loan where the amount is greater than 12000
 - Finds all the tuples in loan where the amount is greater than 1200
 - Finds all the amounts in loan where the number of values is greater than 1200
9. $\Pi_{\text{customer_name}, \text{loan_number}, \text{amount}}(\text{borrower} \bowtie \text{loan})$ What does the above expression perform?
- It finds the customer_name, loan_number and amount from borrower
 - It finds the customer_name, loan_number and amount from loan
 - It finds the customer_name, loan_number and amount from the full outer join of borrower and loan
 - It finds the customer_name, loan_number and amount from the natural join of borrower and loan
10. Which of the following is true about the HAVING clause?
- Similar to the WHERE clause but is used for columns rather than groups.
 - Similar to WHERE clause but is used for rows rather than columns.
 - Similar to WHERE clause but is used for groups rather than rows.
 - Acts exactly like a WHERE clause.
11. How can you change "Thomas" into "Michel" in the "LastName" column in the Users table?
- UPDATE User SET LastName = 'Thomas' INTO LastName = 'Michel'
 - MODIFY Users SET LastName = 'Michel' WHERE LastName = 'Thomas'
 - MODIFY Users SET LastName = 'Thomas' INTO LastName = 'Michel'
 - UPDATE Users SET LastName = 'Michel' WHERE LastName = 'Thomas'

12. Which type of JOIN is used to returns rows that do not have matching values?
- Natural JOIN
 - Outer JOIN
 - EQUI JOIN
 - All of the above
13. Which statement is true regarding procedures?
- They include procedural and SQL statements.
 - They work similarly to the functions
 - It does not need unique names.
 - It cannot be created with SQL statements.
14. Which of the following is the correct order of a SQL statement?
- SELECT, GROUP BY, WHERE, HAVING
 - SELECT, WHERE, GROUP BY, HAVING
 - SELECT, HAVING, WHERE, GROUP BY
 - SELECT, WHERE, HAVING, GROUP BY
15. Find the cities name with the condition and temperature from table 'whether' where condition = sunny or cloudy but temperature ≥ 60 .
- SELECT city, temperature, condition FROM weather WHERE condition = 'cloudy' AND condition = 'sunny' OR temperature ≥ 60
 - SELECT city, temperature, condition FROM weather WHERE condition = 'cloudy' OR condition = 'sunny' OR temperature ≥ 60
 - SELECT city, temperature, condition FROM weather WHERE condition = 'sunny' OR condition = 'cloudy' AND temperature ≥ 60
 - SELECT city, temperature, condition FROM weather WHERE condition = 'sunny' AND condition = 'cloudy' AND temperature ≥ 60

16. Which of the following statement is correct to display all the cities with the condition, temperature, and humidity whose humidity is in the range of 60 to 75 from the 'whether' table?
- a. `SELECT * FROM weather WHERE humidity IN (60 to 75)`
 - b. `SELECT * FROM weather WHERE humidity BETWEEN 60 AND 75`
 - c. `SELECT * FROM weather WHERE humidity NOT IN (60 AND 75)`
 - d. `SELECT * FROM weather WHERE humidity NOT BETWEEN 60 AND 75`
17. Which statement is used to get all data from the student table whose name starts with p?
- a. `SELECT * FROM student WHERE name LIKE '%p%';`
 - b. `SELECT * FROM student WHERE name LIKE 'p%';`
 - c. `SELECT * FROM student WHERE name LIKE '_p%';`
 - d. `SELECT * FROM student WHERE name LIKE '%p';`
18. You need to modify the STUDENT table to add a primary key on the STUDENT_ID column. The table is currently empty. Which statement fully accomplishes this task?
- a) `ALTER TABLE student ADD PRIMARY KEY student_id;`
 - b) `ALTER TABLE student ADD CONSTRAINT PRIMARY KEY (student_id);`
 - c) `ALTER TABLE student ADD CONSTRAINT student_pk PRIMARY KEY student_id;`
 - d) `ALTER TABLE student ADD CONSTRAINT student_pk PRIMARY KEY (student_id);`
19. Which SQL command returns only the number of different salaries (SAL) in the employee (EMP) table?
- a) `SELECT e.sal FROM emp e`
 - b) `SELECT DISTINCT COUNT (e.sal) FROM emp e`
 - c) `SELECT COUNT (e.sal) FROM emp e`
 - d) `SELECT COUNT (DISTINCT e.sal) FROM emp e`

20. Given the following DEPT and EMP tables:

DEPT

DEPTNO	DNAME	LOC
10	ACCOUNTING	NEW YORK
20	RESEARCH	DALLAS
30	SALES	CHICAGO
40	OPERATIONS	BOSTON

EMP

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7839	KING	PRESIDENT		17-NOV-80	5000		
7782	CLARK	MANAGER	7839	09-JUN-89	2450		10
7566	JONES	MANAGER	7839	02-APR-91	2975		20
7788	SCOTT	ANALYST	7566	11-JUL-13	3000		20
7698	BLAKE	MANAGER	7839	01-MAY-81	2850		30
7499	ALLEN	SALESMAN	7698	20-FEB-95	1600	300	30
7654	MARTIN	SALESMAN	7698	28-SEP-93	1250	1400	30
7844	TURNER	SALESMAN	7698	08-SEP-81	1500	0	30

Which of following SQL commands would generate these results:

DEPTNO	DNAME	LOC	EMPNO	ENAME	JOB
10	ACCOUNTING	NEW YORK	7782	CLARK	MANAGER
10	ACCOUNTING	NEW YORK	7839	KING	PRESIDENT
20	RESEARCH	DALLAS	7788	SCOTT	ANALYST
20	RESEARCH	DALLAS	7566	JONES	MANAGER
30	SALES	CHICAGO	7844	TURNER	SALESMAN
30	SALES	CHICAGO	7654	MARTIN	SALESMAN
30	SALES	CHICAGO	7499	ALLEN	SALESMAN
30	SALES	CHICAGO	7698	BLAKE	MANAGER

- SELECT d.deptno, dname, loc, empno, ename, job FROM DEPT d LEFT OUTER JOIN EMP e ON d.deptno = e.deptno;
- SELECT d.deptno, dname, loc, empno, ename, job FROM DEPT d RIGHT OUTER JOIN EMP e ON d.deptno = e.deptno;
- SELECT d.deptno, dname, loc, empno, ename, job FROM DEPT d FULL OUTER JOIN EMP e ON d.deptno = e.deptno;
- SELECT deptno, dname, loc, empno, ename, job FROM DEPT NATURAL JOIN EMP;

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