



Faculty of Management and Social Sciences
Department of Management and Business Studies
BMgt Honours in Business Administration
Course CODE: COM558

Year 3 Semester II

Semester End Examination

Research Methodology – MGBM 3424

- 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.

Date: 2024.03.28

Pass mark: 40%

Time: 03 Hours

Question 01 - Compulsory

Select the most suitable answer for the following MCQ questions with one correct answer.

1. Which of the following is NOT a characteristic of qualitative research?
 - a) Focuses on numerical data analysis
 - b) Emphasizes subjective interpretation
 - c) Uses open-ended questions
 - d) Aims for in-depth understanding

2. What is the primary purpose of a literature review in research?
 - a) To summarize the findings of previous studies
 - b) To identify gaps and inconsistencies in existing research
 - c) To provide background information on the topic
 - d) All of the above

3. What is a hypothesis in research?
 - a) A confirmed fact derived from observations
 - b) A tentative prediction about the relationship between variables
 - c) A descriptive summary of research findings
 - d) A theoretical framework for data analysis

4. Which of the following is a non-probability sampling technique?
 - a) Simple random sampling
 - b) Stratified sampling
 - c) Convenience sampling
 - d) Systematic sampling

5. What is the purpose of a pilot study in research?
 - a) To test the feasibility of the research design
 - b) To recruit a large sample for analysis
 - c) To finalize the research questions
 - d) To conduct a preliminary literature review

6. What is a dependent variable in an experimental study?
 - a) The variable that is manipulated by the researcher
 - b) The variable that is measured and affected by the independent variable
 - c) The variable that remains constant throughout the study
 - d) The variable that influences the independent variable

7. Which of the following is an example of a primary data collection method?
 - a) Observational studies
 - b) Meta-analysis
 - c) Literature review
 - d) Survey research

8. Which of the following is a qualitative research method?
 - a) Experiment
 - b) Survey
 - c) Case study
 - d) Randomized controlled trial

9. In a research study, what does the term "sampling" refer to?
- Collecting data from a subset of the population
 - Analyzing data using statistical techniques
 - Designing the research methodology
 - Drawing conclusions based on research findings
10. What is the term used to describe the extent to which research findings can be generalized to other populations or settings?
- Reliability
 - Validity
 - Transferability
 - Generalizability
11. What is the purpose of a research proposal?
- To present preliminary findings
 - To secure funding for the research project
 - To publish the research in a peer-reviewed journal
 - To provide a detailed plan for conducting the research
12. What is internal validity in research?
- The extent to which findings can be generalized to other populations
 - The degree to which the observed effect is due to the manipulation of the independent variable
 - The consistency of results over repeated measurements
 - The ability of a study to detect relationships between variables
13. What is the purpose of a research design?
- To analyze data
 - To develop research questions
 - To plan the overall approach to the study
 - To recruit participants
14. What is the purpose of a pilot study in research?
- To test the feasibility of the research design
 - To recruit a large sample for analysis
 - To finalize the research questions
 - To conduct a preliminary literature review

15. What is the primary goal of descriptive research?
- To establish cause and effect relationships
 - To explore new phenomena
 - To describe characteristics of a population or phenomenon
 - To test hypotheses
16. Which of the following is an example of quantitative research?
- Observational study
 - Ethnography
 - Survey
 - Case study
17. What is the fundamental principle of the deductive approach in research?
- Inductive reasoning
 - Starting with specific observations to form general theories
 - Testing hypotheses derived from existing theories
 - Exploring phenomena to generate new hypotheses
18. In the deductive approach, what is the initial step researchers take?
- Collecting data
 - Formulating a hypothesis
 - Observing phenomena
 - Developing a theoretical framework
19. Which of the following is a characteristic of deductive reasoning?
- Moving from specific observations to broader generalizations
 - Building theories based on empirical evidence
 - Generating hypotheses based on patterns in data
 - Exploring new phenomena to develop theories
20. What role does hypothesis testing play in the deductive approach?
- It is not relevant in the deductive approach
 - It serves as the starting point for research
 - It helps validate or refute existing theories
 - It generates new theories and concepts

(20 Marks)

Question 02

Non-state degree awarding institutions of Sri Lanka is interested in identifying factors affecting to the students' satisfaction level of the distance learning programmes offered by Non-state degree awarding institutions in Sri Lanka.

Research team developed the below conceptual framework for the above research.

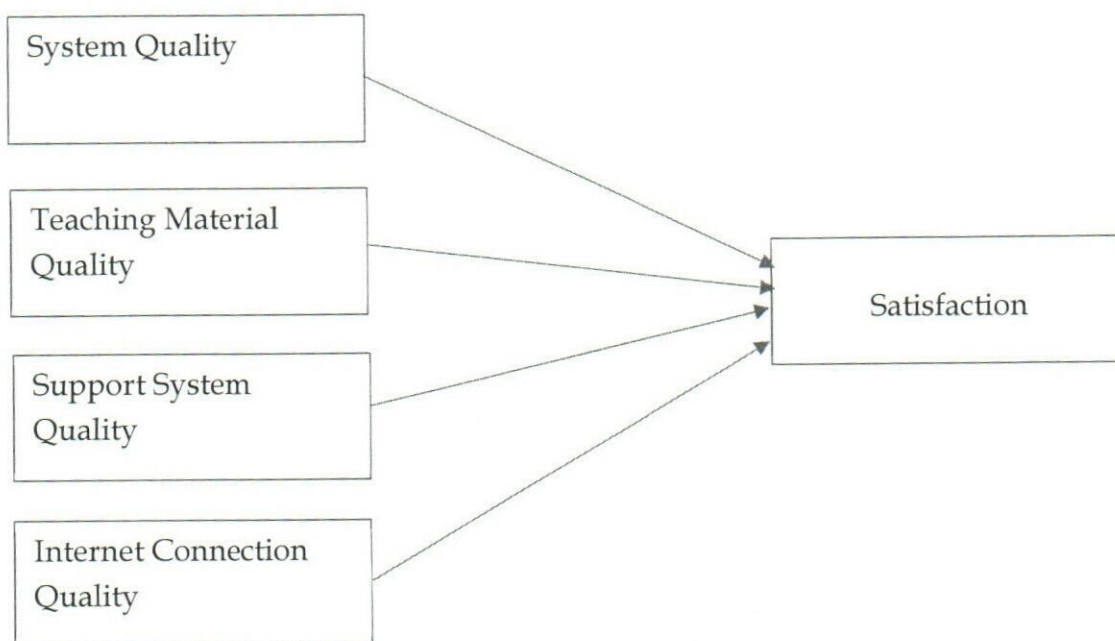


Figure 2.1 - Conceptual framework

Research team collected research data using a survey questionnaire from all students who are following distance learning programmes at the Non-state higher education institutions in Sri Lanka.

- (a) Write 04 research hypotheses for the conceptual framework given above. (04 Marks)
- (b) Research team used Cronbach alpha value to measure the reliability and generated the table 2.1 given below. Interpret the results. (02 Marks)

Table 2.1: Reliability Analysis test

Scale	No of values	Cronbach's Alpha
System Quality	11	0.938

Material Quality	10	0.930
Support System Quality	5	0.848
Connection Quality	6	0.716
Satisfaction	5	0.908

- (c) Research team conducted hypothesis testing using appropriate method and results are shown Table 2.2. Interpret the results. (02 Marks)

Table 2.2: Hypothesis testing Results for Students' Satisfaction

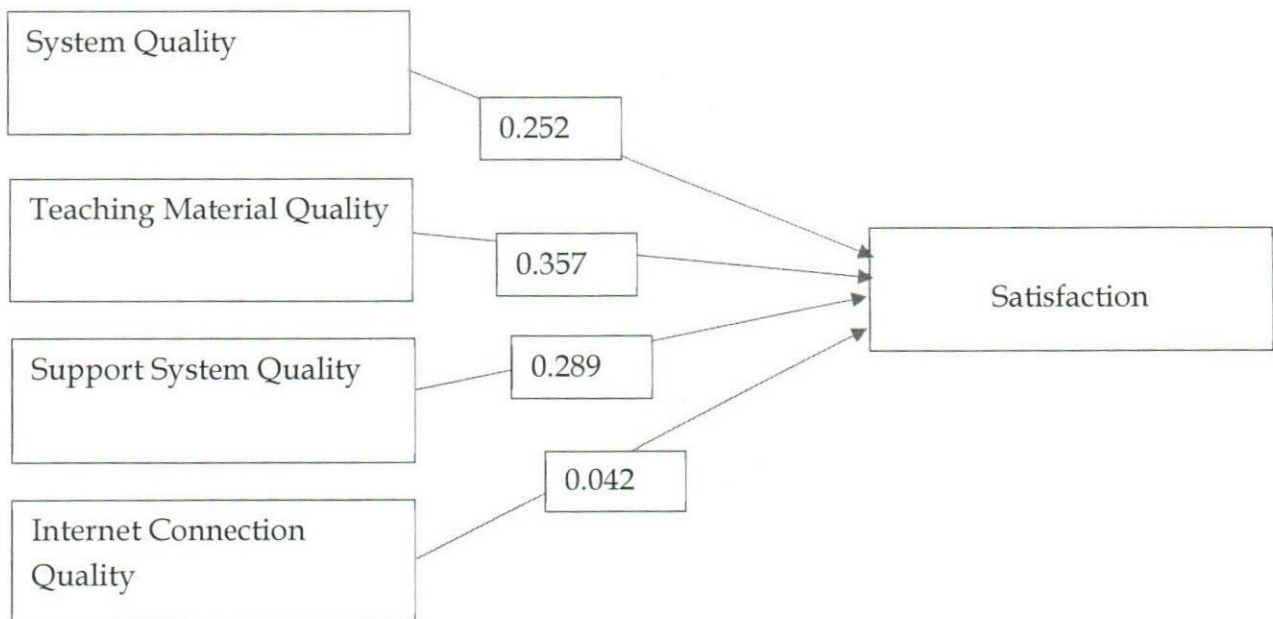
Name of the independent variable	Test Statistic Value	P value
System Quality	0.760	0.000
Teaching Material Quality	0.795	0.000
Support System Quality	0.731	0.000
Connectivity and Accessibility Quality	0.492	0.000

- (d) Research team is interested in checking whether the students' satisfaction is dependent on the gender. Independent sample t-test is used for the above purpose and below output (table 2.3) is generated by the research team.
- Write the Null hypothesis and the alternative hypothesis for the above case. (02 Marks)
 - Write the Null hypothesis and the alternative hypothesis for the Levene's test for equality of variances. (02 Marks)
 - Interpret the results of the Levene's test. (03 Marks)
 - Interpret the test results of the relationship between the gender and the satisfaction. (03 Marks)

Table 2.3: Hypothesis testing for comparing mean satisfaction by gender.

Independent Samples Test										
	Levene's Test for Equality of Variances		t-test for Equality of Means							
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
								Lower	Upper	
SATIS	Equal variances assumed	2.690	.104	1.878	102	.063	1.46154	.77815	-.08193	3.00500
	Equal variances not assumed			1.878	95.048	.063	1.46154	.77815	-.08328	3.00636

- (e) Research team build a statistical model to find the impact of the identified factors and built model is shown in the figure below. Write the formula for the model given below. (02 Marks)



Question 03

- (a) What is meant by Research Paradigm? (04 Marks)
- (b) Distinguish Between the Positivism and Constructivism of Research Epistemologies (06 Marks)
- (c) "A research problem is a statement about an area of concern, a condition to be improved, a difficulty to be eliminated, or a troubling question that exists in scholarly literature, in theory, or in practice that points to the need for meaningful understanding and deliberate investigation."
Critically comment on the above statement, by briefly explaining on the purpose of a research problem and its conceptualization (10 Marks)

Question 04

- (a) List down the Steps in the Research process. Explain with a real example, how those steps are incorporated in to a research study (10 Marks)
- (b) Compare and Contrast the Qualitative Research Study and Quantitative Research study with their advantages and disadvantages (10 Marks)

Question 05

"Colombo has become a rapidly urbanizing city, and there has been a noticeable increase in traffic congestion over the past few years. The local government has implemented various traffic management strategies such as adding more lanes, introducing public transportation incentives, and developing other infrastructures. Despite these efforts, traffic congestion continues to worsen, impacting both residents' daily lives and the city's overall economic productivity."

- a) Identify a research problem based on the above scenario and write down the problem statement? (10 Marks)

- b) Develop two research questions based on this scenario? (10 Marks)

Question 06

Why is the review of literature important in research? Explain your answer with relevant examples. (20 Marks)

Question 07

- a) Explain how you structure the literature review in the dissertation? (10 Marks)
- b) Explain the difference between in-text citations and bibliographic references. (04 Marks)
- c) Providing examples explain the difference between primary, secondary, and tertiary literature sources. (06 Marks)

Question 08

How does Saunders' research onion assist in creating a strong research approach? Explain each layer of the research onion using a simple example to illustrate, from the broad philosophical concepts to the specific practical considerations. (20 Marks)

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



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Year 3 Semester II

SEMESTER END EXAMINATION

Operations Management – MGBM 3325

- This paper consists of EIGHT questions on ELEVEN (11) 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: 2024.03.21

Pass mark: 40%

Time:03 Hours

Question 01: (Compulsory)

SELECT THE MOST APPROPRIATE ANSWER OUT OF THE GIVEN CHOICES.

- 1) Characteristics of a service operation,
 - (a) Tangible
 - (b) Labor intensive
 - (c) Low consumer participation
 - (d) Can be inventoried as a remedy for uncertain future
- 2) Kanban Card system ensures
 - (a) Common language and being an information hub
 - (b) Reduce the need for actual meetings and time waste minimized
 - (c) Zero production waste
 - (d) Improve transparency of the work process itself

- 3) Forecasting is,
- (a) A process of analyzing a future event
 - (b) A process of identifying a future event
 - (c) A process of predicting a future event
 - (d) A process of being ready for a future event
- 4) Not a type of product design
- (a) Product Life Cycles
 - (b) Modular Design
 - (c) Current Engineering
 - (d) Robust Design
- 5) What is the best suit layout for a construction site?
- (a) Free-Flow Layout
 - (b) Fixed Position Layout
 - (c) Loop Layout
 - (d) Forced path
- 6) Business operations overlap with
- (a) Finance, Marketing
 - (b) Finance, Human Resources Management
 - (c) Human Resources Management, Accounting
 - (d) Marketing, Human Resources Management
- 7) Not a factor to consider in Product and Service design
- (a) degree of standardization and customization
 - (b) Centralization
 - (c) Degree of newness

- (d) Cultural differences
- 8) Select the wrong statement,
- (a) Medium/ long-range forecast deal with more comprehensive issues
 - (b) Short-term forecasting usually employs different methodologies than long term-forecasting
 - (c) Short-term forecasts tend to be more accurate than long-term forecasts
 - (d) Maturity requires longer forecasts than introduction and growth of a product
- 9) The difference between costs of inputs and the price of outputs should be,
- (a) Transformation process
 - (b) Value added
 - (c) Control
 - (d) Feedback
- 10) Types of manufacturing operations are,
- (a) Job shops, Batch, Repetitive
 - (b) Job Shops, Intermediate, Repetitive, Continuous
 - (c) Make to Stock, Make to Assemble, Make to Order
 - (d) Job Shop, Repetitive, Continuous, Competitive
- 11) A product layout,
- (a) Grid Layout
 - (b) Loop Layout
 - (c) Assembly line Layout
 - (d) Forced path
- 12) Advantages of Standardization

- (a) Fewer parts to deal with in inventory & manufacturing
- (b) High cost of design changes increases resistance to improvements
- (c) Reduced training costs and time
- (d) More routine purchasing, handling, and inspection procedures

13) Product or service design activities involve

- (a) Controlling authorities
- (b) Formulate quality goals
- (c) Product liability
- (d) Waste disposal

14) Select the correct statement

- (a) Process logistics deals with the getting raw materials to the manufacturing facility
- (b) Strategic planning need not to be always aligned with the operations management
- (c) Value chain encompasses both the aspect of supply chain management and operations management
- (d) The integration between the value chain and supply chain in manufacturing basically involves efficient coordination between the inventory management and financial management.

15) A Challenge of JIT

- (a) Producing items based on the demand
- (b) Increased productivity
- (c) Adapting to sudden increase in volume of demand from the market
- (d) Waste reduction on large inventories

16) A type of a Judgmental Forecasting method

- (a) Jury of Executive
- (b) Sales Force Composite
- (c) Delphi Method
- (d) Naive Approach

17) Short range forecast is for

- (a) Purchasing, job scheduling, workforce levels, job assignments, production levels
- (b) Sales and production planning, budgeting
- (c) New product planning, facility location, research and development
- (d) Workforce levels, facility location

18) Reasons for product and service design

- (a) Be competitive
- (b) Development of new product
- (c) Be comparative
- (d) Change the existing product

19) System operation activities involves

- (a) Capacity decisions
- (b) Location decisions
- (c) Quality assurance
- (d) Product and service planning

20) Not a type of a storage layout

- (e) Drive-In and Drive-Through Racking
- (f) Push-Back Racking System
- (g) Pallet Flow Racking System
- (h) Free Flow Racking System

Question 02

As a consultant hired by a large-scale garment manufacturer specializing in exports, you are tasked with helping the company maintain its competitive edge in the global market while ensuring sustainability and operational efficiency remain paramount in the fast-paced fashion industry.

- (a) Assess the current supply chain structure with graphical illustration. (03 Marks)
- (b) Discuss the possible strategies to address the scenario elaborating on the role of operations management in a business organization. (07 Marks)
- (c) Develop a value chain for the company focusing on the primary activities of a value chain and discuss how integration of value chain and supply chain could help to optimize the business. (10 marks)

Question 03

- (a) Within the expansive domain of manufacturing, each process holds its own significance in adding value to the customers. Identify one example for a manufacturing process and explain inputs, processes and outputs related to it. (04 Marks)
- (b) Service and manufacturing operations are two distinct types of business activities, each with its own characteristics and methods. Differentiate service and manufacturing operations with suitable examples. (06 Marks)
- (c) The good-service continuum represents the spectrum between tangible products (goods) and intangible offerings (services). Understanding this continuum helps businesses tailor their strategies to meet customer expectations and adapt to evolving market trends. Develop a good-service continuum for FIVE industries and explain it with suitable justification. (10 Marks)

Question 04

- (a) "In today's dynamic business environment, companies operate within complex ecosystems where different functions and departments are interdependent. Business operations overlap occurs when different aspects of a company's operations intersect, leading to shared functions, resources, or objectives." Explain the statement with suitable industry examples. (10 Marks)
- (b) ABC Manufacturing Company is a medium-sized and rapidly growing firm specializing in interior design and furniture. They have recently started the production of custom-designed furniture as well. As the company expands its operations, it faces a decision regarding the type of production facility to adopt for its manufacturing process. The senior management is considering both Job Shops and Batch Manufacturing as the options for further development of the firm. Based on the scenario provided, select the most suitable type of production facility for ABC Manufacturing Company and justify your answer. (10 Marks)

Question 05

- (a) "Opulent Couture" is a high-end fashion boutique renowned for its curated collection of designer clothing and accessories, offered exclusively through its online platform. The table below illustrates data spanning the last four weeks. Garments are meticulously prepared a day ahead, with Sunday dedicated to crafting inventory for Monday. Recognizing the boutique's closure over the weekend, Friday's production must anticipate and accommodate demand for Saturday, Sunday, and Monday.

Week	Monday	Tuesday	Wednesday	Thursday	Friday
4 Weeks before	130	115	110	86	423
3 Weeks before	105	100	135	110	350
2 Weeks before	96	80	145	97	450

Last Week	140	125	120	100	600
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- (i) Forecast the production for this week using 4-week simple moving averages. (05 Marks)
- (ii) Forecast the production for this week using weighted moving averages (weights = 0.60, 0.20, 0.15). (05 Marks)
- (b) ABC Company has accumulated the following historical sales data with some missing information, as shown below.

Month	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
Actual Sales	250		400			380	
Forecast Sales			387		298	351	

- Use exponential smoothing with $\alpha = 0.5$ for answering the following questions.
- (i) Find the sales forecasts for March and June. (05 Marks)
- (ii) Find the actual values for March and April. (05 Marks)

Question 06

- (a) Product design is a multidisciplinary process of engineering, design thinking, user experience, and market research to develop tangible new products or improving existing ones that fulfill specific user needs or address market demands. Discuss the importance of product design throughout the life cycle of a product. (10 Marks)
- (b) "Hybe," a prominent hypermarket chain in the Asian region, has long dominated the industry for over a decade. However, with the influx of new competitors, the company now faces significant challenges in maintaining its market position. In response, the CEO has proposed a strategic shift towards modernization, encompassing changes in both store layouts and business concepts. Despite this

initiative, the senior management expresses concerns that transitioning from traditional to modern free-flow or loop layouts could potentially confuse customers and lead to additional costs for the company. As the newly appointed business advisor, how would you address these challenges and provide recommendations for navigating this transition effectively? (10 Marks)

Question 07

- (a) "Maintaining an optimal inventory level is crucial as both overstocking and understocking incur costs." (02 Marks)
- (b) A toy manufacturer uses 1500 silicon chips in a month. The chips are used at a constant rate during the 336 days that they operate though out all 12 months. Assume the annual carrying cost per chip is \$3.00 and ordering costs \$125 per order. If the manufacturer orders 750 units per order, at present, calculate the following
- (i) The total annual inventory cost at present. (05 Marks)
 - (ii) Imagine their newly appointed inventory manager has decided to order using Economic Order Quantity, calculate the EOQ. (02 Marks)
 - (iii) The total annual inventory cost at EOQ. (05 Marks)
 - (iv) Calculate the profit or loss incurred not ordering in EOC and Evaluate the rationale behind your answer. (02 Marks)
- (c) If the annual demand for the toy manufacturer is 18 000 Units, and the lead time to receive their raw materials is 1 weeks and 3 days, calculate the following.
- (i) Re-Order point. (02 marks)
 - (ii) If the new Inventory Manager decided to maintain a 10 days safety stock, calculate the new ROP. (02 Marks)

Question 08

(a) MAX, a prominent apparel manufacturer known for supplying garments to global brands and catering to the local market, has decided to centralize their Supply Chain functions and decentralize their HR division. This strategic move involves integrating global sourcing for raw materials alongside local purchasing, while concurrently managing operations across their 11 manufacturing plants nationwide. Imagine they hire you as a business advisor, assess the rationale behind this decision with appropriate justification. (08 Marks)

(b) Freight car loadings over 10 years at a busy port are as follows:

Year	Number
2014	290
2015	315
2016	345
2017	400
2018	410
2019	455
2020	480
2021	500
2022	530
2023	675

- (i) Determine a linear trend line for freight car loadings. (05 Marks)
- (ii) Use the trend equation to predict loadings for the year 2030. (03 Marks)
- (iii) The manager intends to install new equipment when the volume exceeds 900 loadings a year. Assuming the current trend continues, the loading volume will reach that level approximately in which year? (04 Marks)

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

Formula Sheet

1. Simple Moving Averages

$$F_t = \frac{A_t + A_{t-1} + A_{t-2} + \dots + A_{t-n}}{n}$$

A_t : actual demand in period t

n : number of periods in the average

2. Weighted Moving Averages

$$F_t = W_1 A_t + W_2 A_{t-1} + W_3 A_{t-2} + \dots + W_n A_{t-n}$$

$$\sum_1^n W_i = 1$$

3. Exponential Smoothing

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

F_t = new forecast

F_{t-1} = previous forecast

α = Smoothing Constant ($0 \leq \alpha \leq 1$)

4. Trend Projections

$$y = a + bx$$

y = Computed value of the variable to be predicted (dependent variable)

x = Independent variable

a = Intercept of the y-axis

b = Slope of the regression line

$$b = \frac{\sum xy - n \bar{x} \bar{y}}{\sum x^2 - n \bar{x}^2}$$

$$a = \bar{y} - b \bar{x}$$

5. Exponential Smoothing with Trend Adjustment

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

$$T_t = \beta (F_t - F_{t-1}) + (1-\beta) T_{t-1}$$

$$FIT_t = F_t + T_t$$