1M201

M.B.A. I-Sem. (Main/Back) Exam. - 2024

M-101 / Fundamentals of Management

Time : 3 Hours

Maximum Marks : 70

Instructions to Candidates :

The question paper is divided in three parts. Part-A contains 10 questions which are compulsory. Part-B contains eight questions out of which five are to be attempted. Part-C contains one question which is compulsory.

PART - A

(Word Limit 25 Words Only)

All questions are compulsory

[10×2=20]

Q.1. "Management is regarded as an art by some, science by others, and inexact science by many more. The truth seems to be somewhere in between". Considering this statement, explain the exact nature of management.

Q.2. 'Fayol is considered as the father of modern management theory.' Why?

Q.3. Assess the role of Peter F. Drucker in the development of management thought.

Q.4. 'Decision-making is the essence of planning.' Comment.

Q.5. How do you determine the optimum span of management in a given situation?

Q.6. Differentiate between centralization and decentralization.

Q.7. Does leadership make any difference to the effectiveness of an Organization?

Q.8. 'Staffing involves selection of the right man for the right job'. Do you agree? Justify your answer.

Q.9. "Management involves coordination and integration of all resources, to accomplish specific results". Explain.

Q.10. Briefly explain the management practice of Mr. Steve Jobs.

PART - B

Attempt any five questions

[5×6=30]

Q.1. Enumerate the managerial skills and state their relative importance about different levels of management in an organization.

Q.2. What are the management lessons from Kautilya's Arthashastra?

Q.3. Planning should be defined as the selection from alternative policies, procedures and programs. Elucidate and indicate the various steps involved in planning.

Q.4. ABC Steel Ltd. has decided to diversify its activities and undertake production of 'mobiles'. The CEO of the company seeks your advice on whether to group the activities by product or by function. What advice will you tender and why?

Q.5. To facilitate a near accurate prediction of an applicant's success on the job, the selection methods should meet several generic standards. What according to you, should these standards be?

Q.6. Briefly elaborate behavioural theories of leadership.

Q.7.   What are the various techniques of controlling?

Q.8.   Compare and contrast between the management practices adopted by Mr. Dhirubhai Ambani and Mr. Ratan Tata.

PART - C

Compulsory

[20]

Q.1.   Read the following passage carefully and answer the questions given in the last :

Production managers Mr. Dev (who works for Blocks Ltd.) and Ms. Ruby (who works for Fones Ltd.) They both went to a staff development event last night that was organised by the Production Management Institute, a professional organisation of which they are both members. Mr. Dev and Ms. Ruby talked about the different leadership philosophies they were using in their respective organisations during the tea break. Mr. Dev assured Mr. Ruby that he was pleasant and confident that he would get along well with the industrial workers. He continued by stating that there are fifty people employed in total, 40 of them have been with the company for more than 20 years. Although Mr. Dev believes that they are more difficult to direct, the other workers-most of whom are unskilled-tend to be younger employees who stay for only a year or so before leaving. Mr. Dev is aware that the implementation of new Health and Safety requirements will necessitate discipline among the workers. He is considering taking on a more autocratic leadership style. Ms. Ruby disclosed to Mr. Dev that she had just been given the position and was relatively inexperienced. She emphasised that she oversees a team of forty employees that are divided into project teams and comprised of highly qualified and seasoned personnel. Ms. Ruby said that her predecessor's autocratic leadership style made him unpopular with the staff. At one point, a dispute over management-employee relations was brought to the Labour Relations Agency for mediation. She had been considering implementing a democratic leadership style in light of this.

Questions :

(a)   Explain the key functions of management within organisations such as Blocks Limited and Fones Limited.

(b)   Discuss whether or not Mr. Dev and Ms. Ruby should adopt their proposed new leadership styles within their respective organisations.

(c)   With reference to each organisation (Blocks Limited and Fones Limited), discuss the role of management in directing.

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1M202

1M202

M.B.A. I-Sem. (Main/Back) Exam. - 2024

M-102 / Managerial Economics

Time : 3 Hours   Maximum Marks : 70

Instructions to Candidates :

The question paper is divided in three parts. Part-A contains 10 questions which are compulsory. Part-B contains eight questions out of which five are to be attempted. Part-C contains one question which is compulsory.

PART-A

(Word Limit 25 Words Only)

All questions are compulsory

[10×2=20]

Q.1. Why Managerial economics is called narmative economics?

Q.2. What do you understand by Opportunity Cost?

Q.3. Explain cross elasticity of demand.

Q.4. What do you understand by Price Skimming?

Q.5. Explain Production Function.

Q.6. What are the three stages of Law of Variable Proportions?

Q.7. Explain the concept of Marginal Rate of Substitution.

Q.8. Define Oligopoly.

Q.9. Explain the problem of double counting while calculating the National Income.

Q.10. What are the uses of Break-Even Analysis in taking managerial decisions?

PART-B

Attempt any five questions

$[5 \times 6 = 30]$

Q.1. Differentiate between a Firm and Industry. Explain various types of industries.

Q.2. What do you understand by Price Elasticity of Demand? Find price elasticity of demand at price Rs. 6, when price and quantity demanded behave in the following manner :

$P_1 = 9$ $Q_1 = 5$ $\epsilon_p = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q} = \frac{25}{3} \times \frac{1}{3}$

$P_2 = 6$ $Q_2 = 30$

Price (P) (Rs. per kg.)	9	8	7	6	5	4
Quantity Demanded (Q) (kg.)	5	15	20	30	40	45

Q.3. Why long-run average cost curve is also known as envelope curve?

Q.4. Explain the meaning and types of the laws of returns to scale.

Q.5. Explain the concept of Price stickiness and Kinked demand curve under Oligopoly.

Q.6. Define Isoquants. Explain the concept and properties of Isoquants.

Q.7. Write short notes on the following :

(i) GDP

(ii) NNP at Market Price

(iii) Net Factor Income from Abroad

(iv) NDP

Q.8. What do you understand by Monopoly? Explain the price determination under monopoly in the long-run.

PART-C

Compulsory

[10+10=20]

Q.1. How is Break-Even Analysis determined with the help of a graph? A firm has the following income statement for a month:

	Rs.
Sales (3000 units @ Rs. 80 per unit)	2,40,000
Less : Cost of Goods Sold :	
Variable Production Cost	1,80,000
Fixed Production Cost	19,800
Gross Margin	40,200
Less : Sales and Administrative Expenses :	
Variable Selling Cost	21,000
Fixed Selling Expenses	7,500
Net Income before Taxes	11,700

+21,000

$P/V \ Ratio = \dfrac{contribution}{Sales} = \dfrac{39,000}{2,40,000} = 16.25\%$

Find the Break-Even Output.

-----X-----

Sales 2,40,000
Variable cost 2,01,000
VPC 1,80,000
VSC 21,000
contribution 39,000
FC: 27,300
FPC 19,800
FSE 7,500
27,300
11,700

Contribution per unit = 39,000 ÷ 3000 = ₹13

$BEP = \dfrac{FC}{Contribution} = \dfrac{27,300}{13} = 2100 \ units$ Profit

$BEP (in Rs) = \dfrac{27300}{16.25} = 1,68,000$

Total No. of Questions : 19   Total No. of Pages : 02

1M203

Roll No. : ....

1M203

MBA I-Sem. (Main/Back) Exam. - 2024

M-103/Operations Management

Time : 3 Hours   Maximum Marks : 70

Instructions to Candidates :

The question paper is divided into three parts. Part-A contains ten questions which are compulsory. Part-B contains eight questions out of which five are to be attempted. Part-C contains one question which is compulsory.

PART-A   [10×2=20]

(Word limit 25 words only)
All questions are compulsory

Q.1. Define "Competetiveness".

Q.2. What is "Demand Management"?

Q.3. What do you understand by "Degree of Standardisation"?

Q.4. Explain the term "Capacity".

Q.5. Define "Facility planning".

Q.6. What is a "Layout"?

Q.7. Explain "Bill of Materials".

Q.8. Define "Inventory".

Q.9. What is "Forecasting"?

Q.10. What is "EPQ"?

PART-B   [5×6=30]

Attempt any five questions

Q.1. Briefly explain about operations management and its scope and objectives.

Q.2. Discuss the "Collaborative Planning".

Q.3. Give an overview of "Service Designs".

Q.4. Discuss the factors affecting location decision.

Q.5. Explain about the fixed position layout. Give example.

Q.6. Briefly discuss about Short Range planning and its objectives.

Q.7. Discuss the importance of Inventories.

Q.8. Discuss about the Associative Forecasting Technique.

PART-C   [20]

Compulsory

Q.1. Suppose you are responsible for facility planning in a company that manufactures variety of products for toddlers. What type of planning will you do for facility establishment, and what techniques will you apply? You can assume product-line at your own. Also mention about location analysis.

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1M204

1M204

MBA I-Sem. (Main/Back) Exam, 2024

M-104/Marketing Management

Time : 3 Hours   Maximum Marks : 70

Instructions to Candidates:

The question paper is divided in three parts. Part A contains ten questions which are compulsory. Part B contains eight questions out of which five are to be attempted. Part C contains one question which is compulsory.

<div align="center">

PART-A   [10×2=20]

(Word limit 25 words only)

All questions are compulsory

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Q.1   Define Holistic Marketing.

Q.2   Frame out buying decision process model.

Q.3   State any two objectives of strategic marketing planning.

Q.4   Name the 4P's and additional 3P's.

Q.5   What is product hierarchy ?

Q.6   Give two differences between advertising and personal selling.

Q.7   State any two differences between B2B and B2C.

Q.8   Define Logistics Management.

Q.9   Name different types of Brand.

Q.10   Differentiate between rural marketing and sustainable marketing.

PART-B   [5×6=30]

Attempt any five questions

Q.1   Name different philosophies of Marketing Management. Distinguish between marketing and selling.

Q.2   Explain how external environment influences FMCG sector in India with the help of suitable examples.

Q.3   Discuss the factors influencing pricing decisions in mobile phone industry.

Q.4   'To design a marketing channel system, marketers analyse consumer needs and wants, establish channel objectives, constraints, identify and evaluate major channel objectives.' Elucidate the above statement taking each type of marketing channel into account.

Q.5   Explain the concept of Product Life Cycle. Suggest strategies for any product in maturity stage.

Q.6   Considering the Maslow's Hierarchy of Needs explain how consumer behavior is directed towards satisfying various level of needs.

Q.7   'Developing Customer Relationship and Loyalty is a primary task of any marketer.' Suggest strategies for a retail bank in support of above statement.

Q.8   Discuss the different marketing communication tools in brief.

PART-C   [20]

Compulsory

Q.1   Suggest STP process for a premium laptop brand to be launched in India.   [20]

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1M205 (vertical, left margin)

1M205

MBA I-Sem. (Main/Back) Exam. - 2024

M-105 / Information Technology for Managers

Time : 3 Hours   Maximum Marks : 70

Instructions to Candidates :

The question paper is divided in three parts. Part-A contains 10 questions which are compulsory. Part-B contains eight questions out of which five are to be attempted. Part-C contains one question which is compulsory.

PART - A   [10x2 = 20]

(Word Limit 25 Words Only)

All questions are compulsory

Q.1. What is Internet ?

Q.2. What is Cloud Computing ?

Q.3. Write the functions of MIS.

Q.4. Explain the difference between Data and Information.

Q.5. What is Feasibility Analysis ?

Q.6. Explain the term 'Systems design'.

Q.7. What do you mean by SQL ?

Q.8. What is the meaning of M-Commerce ?

Q.9. Explain the elements of ERP in short. ✓

Q.10. Write the different types of computer virus.

PART - B [5x6=30]

Attempt any five questions

Q.1. What are the key components to run a business online ? Explain in detail.

Q.2. What is Information System ? What are the components of information system ?

Q.3. Briefly explain the different phases of SDLC.

Q.4. Write a short note on Data mining for decision support.

Q.5. What is the need of electronic payment system ? Explain the process of it. Write the different types of e-payment systems.

Q.6. What is the need of CRM ? Discuss the different phases of CRM.

Q.7. Discuss in detail the ethical challenges in IT.

Q.8. Write a note on Cyber Crime and Privacy Issues.

PART - C [20]

Compulsory

Q.1. What do you mean by Artificial Intelligence ? What is the need of AI in business ? Differentiate natural intelligence and artificial intelligence.

xxx

1M206

M.B.A. I-Sem. (Main/Back) Exam. - 2024

M-106 / Organizational Behavior

Time : 3 Hours   Maximum Marks : 70

Instructions to Candidates :

The question paper is divided in three parts. Part-A contains ten questions which are compulsory. Part-B contains eight questions out of which five are to be attempted. Part-C contains one question which is compulsory.

PART - A

(Word Limit 25 Words Only)

All questions are compulsory

[10x2 = 20]

Q.1. What impact does globalization have on managing employee behavior in Organization?

Q.2. With the help of example explain Halo Effect.

Q.3. What do you understand by Attitude? Elaborate components of Attitude.

Q.4. How does the study of Personality help in understanding organization behavior for budding managers?

Q.5. "Motivation is the core of management." List out the importance of motivation in the light of this statement.

Q.6. Define the term "group". What is the importance of group?

Q.7. Differentiate between Power and Authority.

Q.8. "Conflicts benefits Organization". Explain.

Q.9. "Stress is a silent killer. But it can be managed". List out the techniques of Stress Management.

Q.10. Explain any two significance of Organization Culture.

PART - B

Attempt any five questions

[5x6=30]

Q.1. What do you mean by models of Organization Behavior? Differentiate between all the models of Organization Behavior with examples.

Q.2. What are the managerial implications of Perception in Organization? Explain the process of Perception.

Q.3. Briefly explain the following :

(a) Workforce Diversity

(b) Importance of Attitude

Q.4. "People are similar yet they are different". Explain this statement with the help of factors determining personality.

Q.5. "Motivation of Personnel has become a very complicated task in the present day business situations." Do you agree or not? Explain your answer with example.

Q.6. Write notes on the following :

(a) Transactional Analysis

(b) Group Decision Making

Q.7. What do you mean by Organizational Change? What are the forces for organizational change? Explain.

Q.8. "The negative consequences from conflict can be devastating". Explain. Discuss various techniques to resolve conflict in organization.

PART - C

Compulsory

[20]

Q.1. **Case Study :**

Sundar Steel Limited was a medium-sized steel company manufacturing special

steels of various types and grades. It employed 5,000 workers and 450 executives. Under the General Manager (Production), there were Operations, Maintenance, and Service groups, each headed by a chief. The Chief of Maintenance was Shukla and under him Mukherjee was working as the Maintenance Engineer. The total strength of Maintenance was 500 workers, 25 executives and 50 supervisors.

Chatterjee was working in Maintenance as a worker for three years. He was efficient. He had initiative and drive. He performed his duties in a near perfect manner. He was a man of proven technical ability with utmost drive and dash. He was promoted as Supervisor.

Chatterjee, now a Supervisor, was one day passing through the Maintenance Shop on his routine inspection. He found a certain worker sitting idle. He pulled him up for this. The worker retaliated by abusing him with filthy words. With a grim face and utter frustration, Chatterjee reported the matter to Mukherjee. The worker who insulted Chatterjee was a "notorious character", and no supervisor dared to confront him. Mukherjee took a serious view of the incident and served a strong warning letter to the worker.

Nothing very particular about Chatterjee or from him came to the knowledge of Mukherjee. Things were moving smoothly. Chatterjee was getting along well with others.

But after about three years, another serious incident took place. A worker came drunk to duty, began playing cards, and using very filthy language. When Chatterjee strongly objected to this, the worker got up and slapped Chatterjee. Later, the worker went to his union and reported that Chatterjee has assaulted him while he was performing his duties.

Chatterjee had no idea that the situation would take such a turn. He, therefore, never bothered to report the matter to his boss or collect evidence in support of his case.

The union took the case to Shukla and prevailed over him to take stern action against Chatterjee. Shukla instructed Mukherjee to demote Chatterjee to the rank of a worker. Mukherjee expressed his apprehension that in such a case Chatterjee will be of no use to the department, and the demotion would adversely affect the morale

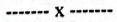of all sincere and efficient supervisors. <u>But Chatterjee was demoted.</u>

Chatterjee continued working in the organisation with all his efficiency, competence, and ability for two months. Then he resigned stating that he had secured better employment elsewhere. Mukherjee was perturbed at this turn of events. While placing Chatterjee's resignation letter before Shukla, he expressed deep concern at this development.

Shukla called Chief of Personnel for advice on this delicate issue. The Chief of Personnel said, "I think the incident should help us to appreciate the essential qualification required for a successful supervisor. An honest and hardworking man need not necessarily prove to be an effective supervisor. Something more is required for this as he has to get things done rather than do himself."

Mukherjee said, "I have a high opinion of Chatterjee. He proved his technical competence and was sincere at his work. Given some guidance on how to deal with the type of persons he had to work with, the sad situation could have been avoided."

Shukla said, "I am really sorry to lose Chatterjee. He was very honest and painstaking in his work. But I do not know how I could have helped him. I wonder how he always managed to get into trouble with workers. We know they are illiterates and some of them are tough. But a supervisor must have the ability and presence of mind to deal with such men. I have numerous supervisors, but I never had to teach anybody how to supervise his men."

Questions :

(a)   Identify the problems in this case.

(b)   Do you think the decision taken by Shukla is in keeping with the faith, trust and creating developmental culture in the Organization? Critically evaluate.

(c)   How would you help in improving rough and tough behavior of employees?

(d)   How would you react to the role and statement of the Chief of Personnel, keeping the whole case and its duration in view?

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1M207

1M207

MBA I-Sem. (Main/Back) Exam. - 2024

M-107/Cost and Management Accounting

Time : 3 Hours   Maximum Marks : 70

Instructions to Candidates :

The question paper is divided in three parts. Part-A contains ten questions which are compulsory. Part-B contains eight questions out of which five are to be attempted. Part-C contains one question which is compulsory.

PART-A   [10×2=20]

(Word limit 25 words only)

All questions are compulsory

Q.1. Briefly explain fundamental accounting equation with the help of a suitable example.

Q.2. Enumerate any one accounting concept.

Q.3. Based on following information compute gross profit and net profit.

	Debit	Credit
Net Sales		12,00,000
Net Purchases	7,00,000	
Opening Stock	1,00,000	
Wages	50,000	
Salaries and Wages	65,000	
Rent Received		1,00,000
Commission Received		10,000

Closing stock is valued at 40,000.

Q.4. Briefly explain elements of cost.

Q.5. Which financial statements are required to be prepared under International Financial Reporting Standards?

Q.6. Briefly explain any two types of accounting.

Q.7. Based on following information compute Break -even Point in Amount and Volume.

Selling Price Per Unit : Rs. 10

Variable Cost Per Unit : Rs. 6

Fixed Cost : Rs. 40,000

Q.8. "Human Resource Accounting facilitates in decision-making." Justify this statement.

Q.9. What is the difference between Fixed and Flexible Budget?

Q.10. Explain Marginal Cost as per Marginal Costing technique with the help of suitable example.

PART-B [5×6=30]

Attempt any five questions

Q.1. What do you understand by Responsibility Accounting? Explain various steps in the process of Responsibility Accounting?

Q.2. What is the significance of preparing financial statements? Based on following information prepare Trading and Profit and Loss Account.

Particulars	Debit	Credit
Stock at commencement	30,640	
Purchase and sales	2,00,000	2,40,000
Returns	4,400	6,000
Drawings and Capital	20,000	2,60,000
Factory heating and lighting	13,200	
Cartage	4,400	
Work expenses	30,400	
Rent received		14,600
Cash at shop	1,600	
Accounts Receivable		
Kapil	16,000	
Jagdish	10,000	
Yash	3,000	
Accounts Payable		
Prashant		32,000
Prabhat		15,080
B/R and B/P	20,000	4,240
Horses and Carts	50,000	
Telephone Expenses	6,000	
Advertisement Expenses	10,400	
Salaries and Wages	64,480	
Freehold Property	1,62,000	
Audit Fees	3,000	
Bank Overdraft		1,34,000
Bank Interest	4,800	
Rent Paid	30,000	
Fire Insurance Premium	9,600	
Life Insurance Premium of employees	12,000	
Total	7,05,920	7,05,920

Closing stock is valued at 1,12,000.

Q.3. What is significance of Budgetary Control? Briefly explain the classification of different types of Budgets available for decision-making.

Q.4. Based on following information compute :

    (a)   Material Cost Variance

    (b)   Material Price Variance

    (c)   Material Usage Variance

    (d)   Material Mix Variance

    (e)   Material Yield Variance

	Standard			Actual	
Material	Quantity	Rate per unit	Material	Quantity	Rate per unit
X	120	5	X	112	6
Y	80	10	Y	88	11
	200			200	
Less standard loss 30%	60		Less actual loss 25%	50	
Output	140			150	

Q.5. Based on following transactions pass journal entries, post in ledger and prepare trial balance for business owned by Mr. Ramakrishnan :

    (a)   Opening balance of Bank 20,00,000 Capital 22,00,000, Debtors : Ankur-1,00,000, Ashish 2,00,000, Creditors : Hitesh - 50,000, Ramesh 50,000.

    (b)   Sold goods to Mr. Shyam 50,000, received half of the payment immediately by cheque.

    (c)   Salaries Outstanding 14,000.

    (d)   Received 24,000 from Mr. Shyam in full settlement of his account.

    (e)   Purchased from Mohan 40,000 and paid immediately by cheque.

Q.6. "Preparation of Comparative and Common size financial statements plays a significant role in decision-making." Justify this statement and prepare common size income statement for the year ending 31st March, 2022 and 31st March, 2021 and comment on the profitability position based on the result of common size Income statements.

Statement of Profit and Loss		
Particulars	31st March 2022	31st March 2021
Income		
Revenue from operations	2,00,000	1,80,000
Other income	15,000	10,000
Total Revenue	2,15,000	1,90,000
Expenses		
Cost of Material Consumed	1,10,000	85,000
Other Expenses	5,000	3,000
Total Expenses	1,15,000	88,000
Tax	40,000	25,000

Q.7. Write detailed note on any two of the following :

(a) Investment Analysis Ratio

(b) Cost Volume Profit Analysis

(c) Inventory Management

Q.8. What are the characteristics of Goodwill of a business? Explain various methods used in goodwill valuation.

Compulsory

Q.1. Based on following information prepare Cash Flow Statement and comment on the cash flow position of the Mahendra Ltd.

Particulars	Note no.	31-03-2019	31-03-2018
Equity and Liabilities			
1. Shareholders Fund			
(a) Share Capital		10,00,000	8,00,000
(b) Reserves and Surplus	1	6,10,000	4,20,000
2. Non-current Liability			
Long-term Borrowing	2	6,20,000	6,00,000
3. Current Liabilities			
Trade Payables		1,90,000	1,60,000
Total		24,20,000	19,80,000
Asset :			
1. Non-current Asset			
Tangible Fixed Asset	4	14,00,000	10,00,000
2. Non-current Investment		1,12,000	1,40,000
3. Current Assets			
(a) Inventory		5,60,000	4,20,000
(b) Trade Receivables	3	2,28,000	2,80,000
(c) Cash and Bank Balance		1,20,000	1,40,000
Total		24,20,000	19,80,000

Notes

		31-03-2019	31-3-2018
1	**Reserves & Surplus**		
	General Reserve	2,30,000	2,00,000
	Profit & Loss Balance	3,80,000	2,20,000
		6,10,000	4,20,000
2	**Long-term Borrowing**		
	12% Debentures	3,00,000	4,00,000
	14% Mortgage Loan	3,20,000	2,00,000
		6,20,000	6,00,000

3	**Trade Receivables**		
	Sundry Debtors	1,88,000	2,50,000
	Bills Receivable	40,000	30,000
4	**Tangible Fixed Assets**	16,00,000	11,00,000
	Accumulated Depreciation	(2,00,000)	(1,00,000)
		14,00,000	10,00,000

Adjustments :

1.   Debentures were redeemed on 1.4.2018.

2.   Loan was taken and received on 31.3.2019.

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1M208

1M208

M.B.A. I-Sem. (Main/Back) Exam. - 2024

M-108 / Business Statistics and Analytics for Decision Making

Time : 3 Hours   Maximum Marks : 70

Instructions to Candidates :

The question paper is divided in three parts. Part-A contains 10 questions which are compulsory. Part-B contains eight questions out of which five are to be attempted. Part-C contains one question which is compulsory.

PART-A

(Word Limit 25 Words Only)

All questions are compulsory

[10×2=20]

1. Write any two properties of Matrix Addition.

2. If $A = \begin{bmatrix} 1 & 3 & 5 \\ 7 & 9 & 11 \end{bmatrix}$ and $B = \begin{bmatrix} 7 & 8 & 9 \\ 10 & 11 & 12 \end{bmatrix}$ then find $(A + B)$.

3. Find the value of median if :

$\bar{x} = 25, z = 22$

4. What is EDA ? Explain.

5. From the following distribution compute the Range and its coefficient :

Class Interval	Frequency
1-5	2
6-10	8
11-15	15
16-20	35
21-25	20
26-30	10

6. Find the value of coefficient of variation and variance if mean deviation is 32 and mean is 60, of a group.

7. Calculate Fisher's Index Number :

$$\Sigma p_1 q_1 = 2207 \quad \Sigma p_0 q_0 = 1600$$
$$\Sigma p_0 q_1 = 1510 \quad \Sigma p_1 q_0 = 2040$$

8. If the correlation coefficient between 'X' and 'Y' is +0.62 and variance of 'X' and 'Y' series are 30 and 108 respectively. Find out the co-variance between the two series.

9. Explain Amortization.

10. What is the probability of drawing a card from a pack of card that drawn card is either a HEART or a KING ?

PART-B

Attempt any five questions

[5×6=30]

Q.1. If $P = \begin{bmatrix} 7 & 2 \\ 5 & -4 \end{bmatrix}$; $Q = \begin{bmatrix} 3 & 6 \\ -1 & 4 \end{bmatrix}$ and $R = \begin{bmatrix} 2 & 2 \\ 6 & 4 \end{bmatrix}$ then verify that

$$P + (Q + R) = (P + Q) + R.$$

Q.2. Deviations of item values of the series (X and Y) from assumed mean are as follows :

(X)	+5	-4	-2	+20	-10	0	+3	0	-15	-5
(Y)	+5	-12	-7	+25	-10	-3	0	+2	-9	-15

Find Karl Pearson's coefficient of correlation and say whether it is significant or not.

Q.3. An analysis of monthly wages paid to worker in two firms X and Y belonging to the same industry gives the following results :

	Firm 'A'	Firm 'B'
No. of wage earners	540	650
Average monthly wages	Rs. 50	Rs. 46
Variance of distribution	81	100

(i)   Which firm, 'X' or 'Y' pays out the larger amount of wages ?

(ii)   In which firm, 'X' or 'Y' is there greater variability in individual wages ?

Q.4. From the following data, calculate the Index Number taking 2002 as the base year :

Year	Price of Cotton per kg.
2002	2
2003	3
2004	4
2005	5
2006	6
2007	7
2008	8
2009	9
2010	10
2011	14
2012	20

Q.5. 7 men are graduated out of 20 in a company, if 3 men were picked among them at random, what is the probability that they are :

(i)   all graduated

(ii)   at least one graduated ?

Q.6. Explain algebraic properties of Arithmetic Mean.

Q.7. From the following results of 100 students, obtain the regression equations and estimate the height when weight is 72 kg and the weight when height is 160 cms :

	Height in cm.	Weight in kg.
Mean ($\overline{X}$)	150	55
S.D. (σ)	5	3

Coefficient of correlation is +0.8.

8. Information available for the year ended 31st March, 2024 is Sales 1,00,000; Variable cost 60,000; Fixed cost 30,000. Find :

(i) Sales to earn a profit of ₹15,000

(ii) Profit when sales amounted to ₹ 1,40,000

PART-C

Compulsory

[10+10=20]

Q.1. From the following information, find out if there is any relationship between density of population and death rate :

District	Area(sq.kms.)	Population	No. of Deaths
A	150	30,000	300
B	180	90,000	1,440
C	100	40,000	560
D	60	42,000	840
E	120	72,000	1,224
F	80	24,000	312

------- X -------