

END TERM EXAMINATION

FIRST SEMESTER [BBA] DECEMBER 2025-JANUARY 2026

Paper Code: BBA-103

BBA/CAM/103

BBA/DM/103

BBA/PS-103

MBG-103

Subject: Business Mathematics

Time: 3 Hours

Maximum Marks: 60

Note: Attempt any five questions.

Q1 a) Use the principle of mathematical induction to prove that

$$1 + 2 + 3 + \dots + n = \frac{n(n+1)}{2}$$

(6)

b) Find the first term of an A.P. whose common difference is 3 and whose 7th term is 11. (6)

Q2 a) In how many ways can 8 persons be seated at a round table? In how many cases will two particular persons sit together? (6)

b) In how many ways can the letters of the word 'ACCOUNTANT' be arranged? In how many of these, vowels are always together? (6)

Q3 a) If $y = \sqrt{x}$ and $u = 5 + 7x + x^2$, find dy/dx . (6)

b) Find dy/dx when $x^3 + y^3 = xy$. (6)

Q4 a) The total cost $C(x)$ of a firm is: $C(x) = 1500 + 30x + x^2$, where x is the output. Determine: (6)

(i) The Average Cost

(ii) The Marginal Cost

(iii) The Marginal Cost when 20 units are produced

(iv) The actual cost of producing twenty first unit

b) Find the absolute maximum and minimum values of the function $f(x) = 1.6x - x^2$ in the closed interval $[0, 4]$. (6)

Q5 a) Solve the following system of linear equations by Cramer's rule: (6)

$$x - 4y - z = 11$$

$$2x - 5y + 2z = 39$$

$$-3x + 2y + z = 1$$

b) Show that the matrix $A = \begin{bmatrix} 2 & 5 & 3 \\ -1 & 1 & 1 \\ 4 & 1 & 3 \end{bmatrix}$ satisfies the equation $A^3 - 7A^2 - 5A + 13I = O$. (6)

Hence obtain A^{-1} .

Q6 a) The demand law for a commodity is given by $p = 20 - 2x - x^2$. Find the consumer's surplus when the market demand is 3. (6)

b) Find the area of the region bounded by the curve $y = x^2$, the x -axis and the lines $x=2$ and $x=3$. (6)

Q7 a) Evaluate the following integrals (6)

(i) $\int x \log x \, dx$

(ii) $\int \frac{\log x}{\sqrt{x}} \, dx$

P.T.O.

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b) If the marginal cost function is given by $MC = 3(3x+4)^{-1/2}$, and the fixed cost is 2, find the average cost for 7 units of output. (6)

a) A firm has two machines M_1 and M_2 costing Rs 45,000 and Rs. 30,000. Each has 5 years life with scrap value nil. Find depreciation of each machine for each year using matrix notation if both are depreciated by sum of the year's digit method. (6)

b) Find the sum of all natural numbers between 250 and 1000, which are exactly divisible by 3. (6)

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END TERM EXAMINATION

FIRST SEMESTER [BBA] DECEMBER-2025-JANUARY-2026

Paper Code: BBA-FS-101	Subject: Management Process and
BBA-DM-101	Organizational Behaviour
BBA(CAM)-101	
BBA(B&I)-101	
BBA-(G)-101	

Time: 3 Hours

Maximum Marks: 60

Note: Attempt All questions as directed. Internal choice is indicated.

- Q1 Attempt **any Four** of the following questions. (4x5=20)
- Briefly explain the three components of attitude.
 - Explain any three common power tactics used by managers to influence others.
 - Explain the primary functions of management with examples.
 - Describe the steps involved in the decision-making process in an organization.
 - Differentiate between intrinsic and extrinsic motivation with examples.
 - Discuss the key features of delegation of authority.
 - Describe any two leadership styles and their significance in motivating employees.
 - Discuss the importance of values in shaping individual and organizational behavior.
- Q2 Define personality and explain the major factors influencing personality. Also describe in detail any one framework that analyzes the various aspects of personality. (10)
- OR**
- Q3 Describe the contributions of Elton Mayo and the Hawthorne Studies to the human relations movement. Explain how the human relations approach differs from the classical management approach. (10)
- Q4 Discuss the concept of organizing as a managerial function. Also discuss how span of management influences organizational structure and efficiency. (10)
- OR**
- Q5 Discuss how the contingency approach emphasizes "there is no one best way" to manage. Also define the systems approach in management and explain its key features. (10)
- Q6 Define perception and explain its importance in organizational behavior. Also explain the perceptual process with suitable examples. Discuss the impact of perceptual biases and stereotyping on organizational effectiveness. (10)
- OR**
- Q7 Discuss the concept and importance of strategic planning in business management. Also describe environmental analysis and its significance for organizations. (10)
- Q8 Discuss the concept of learning in organizational behavior. Compare and contrast the classical conditioning and operant conditioning theories of learning. (10)
- OR**
- Q9 Define organizational culture and explain its key characteristics. Also explain the main determinants that shape organizational culture in an organization. (10)