

Dr. Babasaheb Ambedkar Open University
Term End Examination February – 2026

Course	: BBA/DBA	Date	: 27-Feb-26
Subject Code	: BBAMDC103/ DBAMDC103	Time	: 11:30am to 01:45pm
Subject Name	: Business Mathematics	Duration	: 02.15 Hours
		Max. Marks	: 70

- Answer the following questions.
- Q-1** Simplify (i) $\frac{5^{x+2} - (25)5^{x-1}}{10[5^x]}$ **14**
(ii) $\frac{3^x + 3^{x-1}}{3^{x+1} - 3^x}$
Or
Explain the Meaning, definition, properties, and types of combination.
- Q-2** Solve the following simultaneous equations using Cramer's Method. **14**
 $2x + y - z = 3$
 $x + y + z = 1$
 $x - 2y - 3z = 4$
Or
Explain the Types of Matrices.
- Q-3** Prove that (3, 2), (5, 4), (3, 6), (1, 4) are the vertices of a square. **14**
Or
Explain the Basic Rules and Techniques of Integration.
- Q-4** Explain the Concepts or Models of Mathematics of Finance. **14**
Or
Suppose there is a demand of 40 units of a product when its price is Rs. 12 per unit and 25 units when its price is Rs. 18 per unit. Find the demand function, assuming that it is linear. Also, determine the price per unit when 30 units are demanded.
- Q-5 (A)** Write a short note (any three) **09**
1 De Morgan's Law and prove it by using examples.
2 Characteristics and Uses of the Binomial Theorem.
3 An arithmetic progression first term is 3, and the sum of the first 8 terms is twice the sum of the first 5 terms. Find the value of d.
4 Find the derivative of $(x + 1)(x + 2)$ with respect to x using the first principle.
5 Mr. Suresh purchased a mobile costing Rs. 60,000 on 1-1-2024. Its expected life is 8 years. It is assumed that after 8 years, the cost of the same mobile will have increased by 25%. What sum should he deposit on 31st December of every year at 15% rate of interest so that enough sum is accumulated to meet the cost of a new mobile?

- 1 A diagonal matrix is always:
 - a) Square matrix
 - b) Rectangle matrix
 - c) Any type of matrix
 - d) None of these
- 2 Which type of interest is calculated on the initial principal amount and accrued interest?
 - a) Compound Interest
 - b) Simple Interest
 - c) Both A and B
 - d) None of the above
- 3 The first term (a) of an Arithmetic Progression (AP) 2 and the common difference (d) 3, find out the 6th term?
 - a) 7
 - b) 15
 - c) 12
 - d) 14
- 4 n a set can be represented by showing all the members within brackets.
 - a) Roster method
 - b) Union
 - c) Null
 - d) Rule method
- 5 In economics, the area between the demand curve and the price line represents:
 - a) Producer surplus
 - b) Consumer surplus
 - c) Total revenue
 - d) Profit
