



Roll No:

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**BCA**  
**(SEM I) THEORY EXAMINATION 2025-26**  
**ELEMENTARY MATHEMATICS BRIDGE COURSE**

TIME: 3 HRS

M.MARKS: 70

**Note:** Attempt all Sections. In case of any missing data; choose suitably.

**SECTION A**

1. Attempt all questions in brief.

02 x 7 = 14

Q no.	Question	CO	Level
a.	State the Division Algorithm.	1	K2
b.	Write the general form of a $2 \times 2$ matrix.		
c.	Write the formula for the area of a triangle.		
d.	Find the remainder when 2456 is divided by 9.		
e.	Find the value of: $\log 10 + \log 100$		
f.	Evaluate: $\begin{vmatrix} 1 & 2 \\ 3 & 4 \end{vmatrix}$		
g.	Find the value of: $\sin 30^\circ \times \sin 60^\circ$		

**SECTION B**

2. Attempt any three of the following:

07 x 3 = 21

a.	Find the area of a square whose diagonal is $10\sqrt{2}$ cm.	1	K2
b.	Prove the identity: $\frac{\sin \theta}{1 + \cos \theta} + \frac{1 + \cos \theta}{\sin \theta} = 2 \csc \theta$		
c.	Simplify: $\log 25 + \log 4 - \log 10$		
d.	Find the product of matrices: $\begin{bmatrix} 1 & 2 \\ 0 & 1 \end{bmatrix} \begin{bmatrix} 2 & 1 \\ 3 & 4 \end{bmatrix}$		
e.	Find the 10th term of the A.P. 5, 9, 13, ...		

**SECTION C**

3. Attempt any one part of the following:

07 x 1 = 07

a.	A ladder 10 m long rests against a vertical wall. If the foot of the ladder is 6 m away from the wall, find the height reached by the ladder.	1	K2
b.	Find the volume and curved surface area of a cone of radius 7 cm and height 24 cm. (Take $\pi = 22/7$ )		

4. Attempt any one part of the following:

07 x 1 = 07

a.	Find the determinant of: $\begin{bmatrix} 2 & -1 & 3 \\ 1 & 0 & 2 \\ 4 & 1 & -1 \end{bmatrix}$	1	K2
b.	Find the inverse of the matrix: $\begin{bmatrix} 4 & 1 \\ 2 & 3 \end{bmatrix}$		

5. Attempt any one part of the following:

07 x 1 = 07

a.	Define a relation. Prove that an equivalence relation is reflexive, symmetric, and transitive.	1	K2
b.	Using Venn diagrams, verify: $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$		



PAPER ID-311537

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**6. Attempt any *one* part of the following:**

**07 x 1 = 07**

a.	Find the coefficient of $x^3$ in the expansion of $(2x-1)^5$	1	K2
b.	Find the 5th term of a G.P. whose first term is 3 and common ratio is 2.		

**7. Attempt any *one* part of the following:**

**07 x 1 = 07**

a.	Find the H.C.F. and L.C.M. of 84 and 126 using the Euclidean algorithm	1	K2
b.	Prove: $(1 + \tan^2 \theta)(1 - \sin^2 \theta) = 1$		

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