PAPER ID-311537

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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 × 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: $log10 + log100$		
f.	Evaluate: $\begin{vmatrix} 1 & 2 \\ 3 & 4 \end{vmatrix}$		
g.	Find the value of: $\sin 30^0 \times \sin 60^0$		

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*:* $log25 + log4 - log10$		
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 π=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∩(B∪C) = (A∩B) ∪ (A∩C)		

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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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