

CBCS SCHEME

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1BESC104A

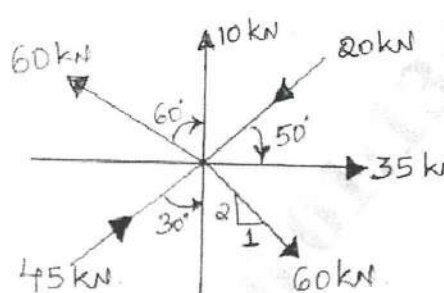
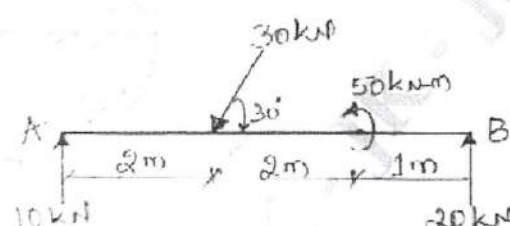
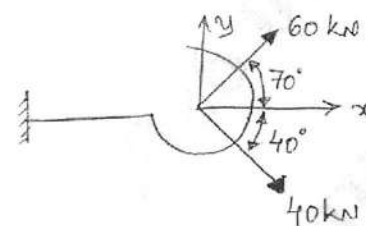
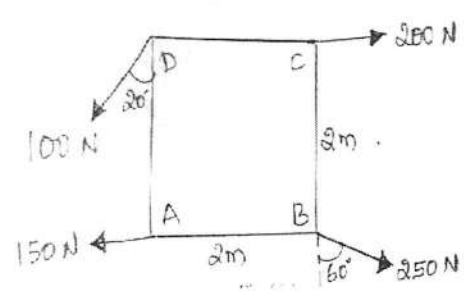
First Semester B.E./B.Tech. Degree Examination, Dec.2025/Jan.2026 Building Science and Mechanics

Time: 3 hrs.

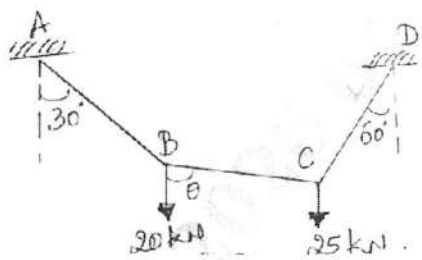
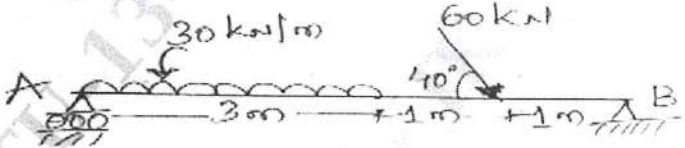
Max. Marks: 100

*Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.*

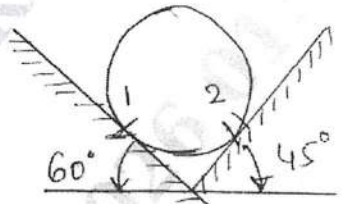
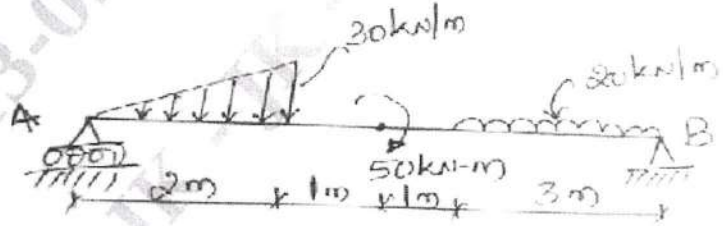
Module – 1			M	L	CO
Q.1	a.	Explain the following scope of Civil Engineering in the following discipline: i) Structural Engineering ii) Environmental Engineering	8	L1	CO1
	b.	Write a note on constitution of cement.	6	L1	CO1
	c.	Explain the types and uses of Bricks.	6	L1	CO1
OR					
Q.2	a.	List and explain the structural elements of a building.	8	L1	CO1
	b.	Briefly explain the Structural steel in the construction and its types.	6	L1	CO1
	c.	Write a note on the importance of Construction planning and Project Management in the sustainable construction of a project.	6	L1	CO1
Module – 2					
Q.3	a.	Explain the types and uses of Autoclaved Aerated (AAC) Blocks.	8	L1	CO2
	b.	Write a note on emerging materials for a sustainable construction.	6	L1	CO2
	c.	Write a note on Energy efficient building.	6	L1	CO2
OR					
Q.4	a.	Write a note on Green Building Concept and its rating system with IGBC (Indian Green Building Council).	8	L1	CO2
	b.	Write note on Smart City Concept.	6	L1	CO2
	c.	Brief the challenges and limitations of Plastic Recycling.	6	L1	CO2
Module – 3					
Q.5	a.	Describe the System of Forces with the neat sketch.	4	L2	CO3

	b.	Determine the magnitude and direction of the resultant of the coplanar concurrent system of forces shown in Fig.5(b)	8	L3	CO3
		 Fig.5(b)			
	c.	Determine the magnitude, direction and position of the resultant of the coplanar non concurrent system of forces shown in Fig.5(c)	8	L3	CO3
		 Fig.5(c)			
OR					
Q.6	a.	State and Prove Varignon's theorem of Moments.	4	L2	CO3
	b.	Determine the magnitude and direction of the resultant of the coplanar concurrent system of forces shown in Fig.6(b)	8	L3	CO3
		 Fig.6(b)			
	c.	Determine the magnitude, direction and position of the resultant of the coplanar non concurrent system of forces shown in Fig.6(c)	8	L3	CO3
		 Fig.6(c)			

Module – 4

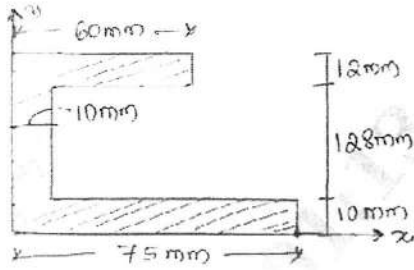
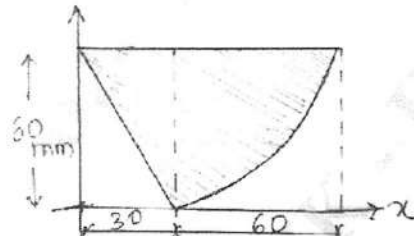
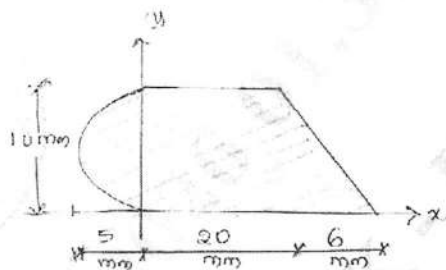
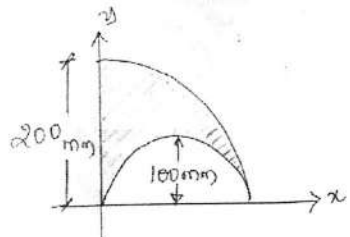
Q.7	a.	State and Prove Lami's Theorem.	4	L2	CO4
	b.	Determine the tension developed in the segments AB, BC and CD of the wire and also the inclination of BC to the vertical as shown in the Fig.7(b)	8	L3	CO4
		 Fig.7(b)			
	c.	Find the reactions developed at supports A and B of the loaded beam as shown in the Fig.7(c)	8	L3	CO4
		 Fig.7(c)			

OR

Q.8	a.	Explain with the neat sketches on the types of Supports in structures.	4	L2	CO4
	b.	A 500 N sphere is resting in a trough as shown in the Fig.8(b). Determine the reactions developed at contact surfaces 1 and 2 as shown in the figure.	8	L3	CO4
		 Fig.8(b)			
	c.	Determine the reactions developed at supports A and B of the beam shown in the Fig8(c)	8	L3	CO4
		 Fig.8(c)			

Module – 5

Q.9	a.	Derive the centroid of a triangle of width 'b' and depth 'd' by the method of integration.	4	L2	CO5
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b.	Determine the centroid of the shaded area shown in the Fig.9(b)  Fig.9(b)	8	L3	CO5
c.	Determine the centroid of the shaded area shown in the Fig.9(c)  Fig.9(c)	8	L3	CO5
OR				
Q.10 a.	Derive the centroid of a Semicircle of radius 'r' by the method of integration.	4	L2	CO5
b.	Determine the centroid of the shaded area shown in the Fig.10(b)  Fig.10(b)	8	L3	CO5
c.	Determine the centroid of the shaded area shown in the Fig.10(c)  Fig.10(c)	8	L3	CO5
