



First Semester B.E./B.Tech. Degree Examination, June/July 2025
Introduction to Civil Engineering

Max. Marks: 100

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

Module - 1

Q.1	a.	Explain briefly any four branches of Civil Engineering.	M 10	L L1	C CO1
	b.	Explain the classification of bricks. Mention any four properties of good bricks.	10	L1	CO1

OR

Q.2	a.	Explain the following : (i) Reinforced Cement Concrete (RCC) (ii) Pre-Stressed Concrete (PSC)	10	L1	CO1
	b.	Explain the following structural elements : (i) Foundation (ii) Beam	10	L1	CO1

Module - 2

Q.3	a.	List the 17 sustainable development goals. Explain any two of them.	10	L1	CO2
	b.	Explain the concepts of : (i) Smart City (ii) Safe City	10	L1	CO2

OR

Q.4	a.	Explain the following : (i) Energy Efficient Buildings (ii) Smart Buildings	10	L1	CO2
	b.	Explain the importance of water supply and sanitary systems.	10	L1	CO2

Module - 3

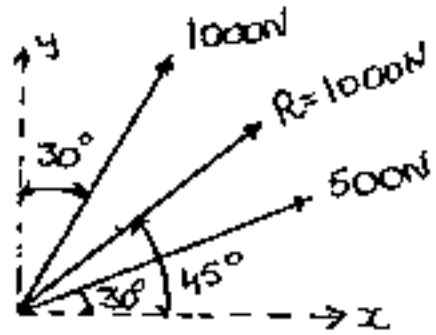
Q.5	a.	Explain the classification of system of forces with neat sketches.	10	L1	CO3
	b.	Two forces acting on a body are 500 N and 1000 N as shown in Fig.Q5(b). Determine the third force 'F' such that the resultant of all three forces is 1000 N directed at 45° to the x-axis. 	10	L3	CO3

Fig.Q5(b)

OR

Q.6	a. State and prove Varignon's theorem of moments.	10	L3	CO3
b.	A light string ABCDE is fixed to weights w_1 and w_2 at B and C and a weight of 100 N at free end E. Find the tensions in the various portion of the string and weights ' w_1 ' and ' w_2 '. BC is horizontal. Refer Fig.Q6(b).	10	L3	CO3

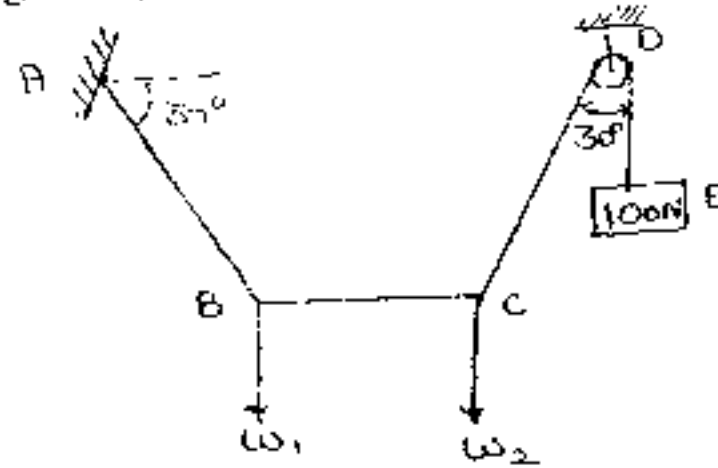


Fig.Q6(b)

Module - 4

Q.7	a. Derive the centroid for a triangle using first principle.	10	L3	CO4
b.	Determine the centroid of a shaded area shown in Fig.Q7(b).	10	L3	CO4

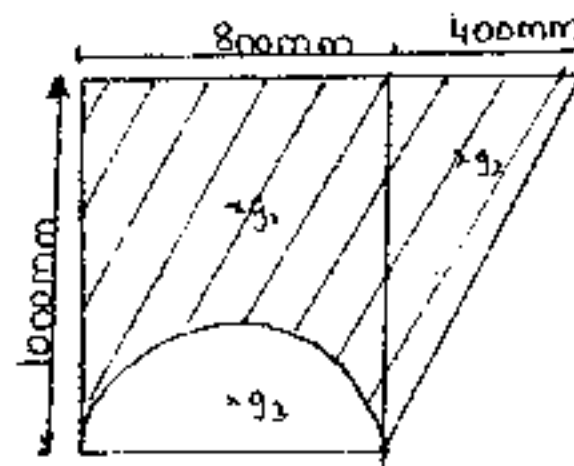


Fig.Q7(b)

OR

Q.8	a. Derive the centroid for a semicircle using first principle.	10	L3	CO4
b.	Determine the centroid of a shaded area shown in Fig.Q8(b).	10	L3	CO4

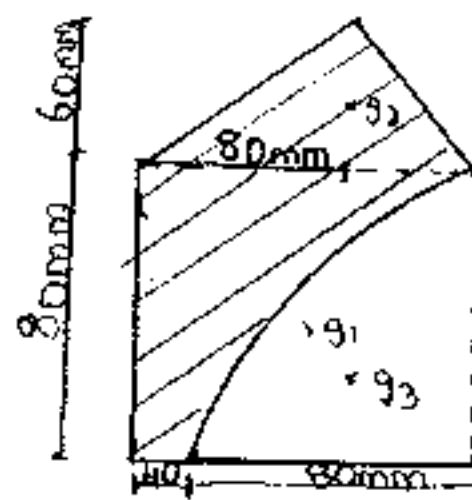


Fig.Q8(b)

Module – 5

- Q.9** a. Derive the moment of inertia for a triangle (i) about the base (ii) about the centroid axis. 10 L3 CO
- b. Find the M-I along the horizontal axis passing through the centroid of the section shown in Fig.Q9(b). 10 L3 CO5

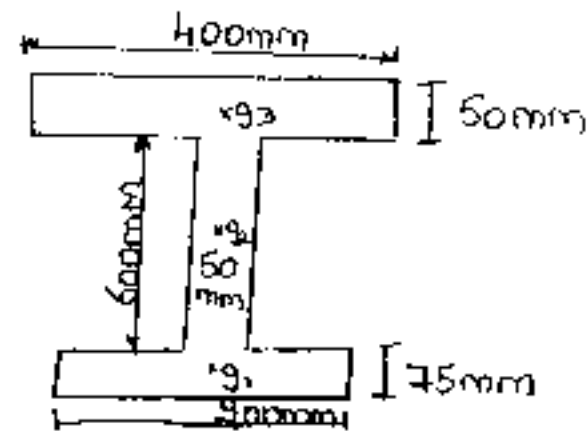


Fig.Q9(b)

OR

- Q.10** a. State and prove parallel axis theorem. 10 L3 CO5
- b. Determine the polar moment of inertia of the section about the centroidal axis. Refer Fig.Q10(b). 10 L3 CO5

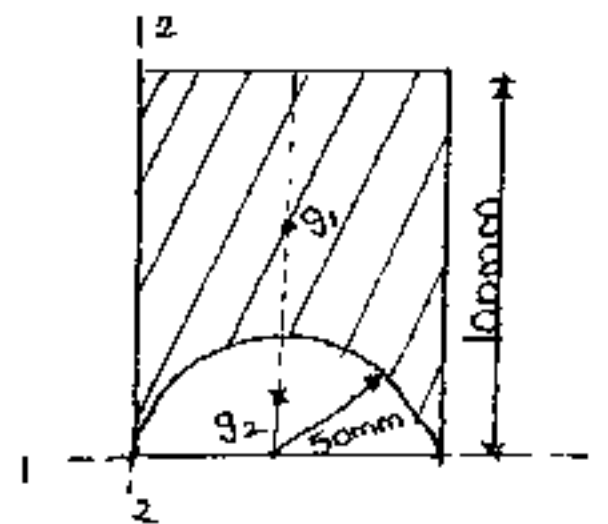


Fig.Q10(b)
