VIT

Vellore Institute of Technology

(Deemed to be University, under section 3 of UGC Act, 1956)

REG.NO.: 25BAR0073

SLOT: I2+I3+U3

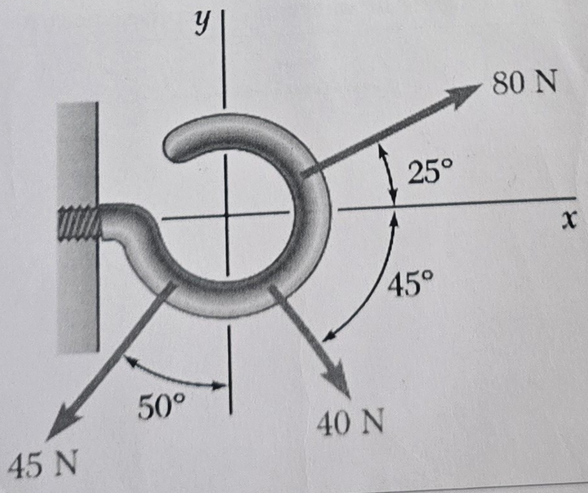
SCHOOL OF ARCHITECTURE
MIDTERM EXAMINATION
FALL SEMESTER 2026-27

Programme Name & Branch	: B. Arch Architecture
Course Code and Course Name	: BARC207L & Principles of Structures
Faculty Name(s)	: Dr. A. Punitha Kumar, Dr. K. S. K. Karthik Reddy
Class Number(s)	: VL2026270103854, VL2026270103851
Date of Examination	: 28-09-2026
Exam Duration	: 90 minutes **Maximum Marks:** 50

General instruction(s):

- Answer All Questions
- M - Max mark; CO – Course Outcome; BL – Blooms Taxonomy Level (1 – Remember, 2 – Understand, 3 – Apply, 4 – Analyse, 5 – Evaluate, 6 – Create)

- **Course Outcomes:**
  CO-1 Understand principles related to physics, relevant to structural design
  CO-2 Determine simple stresses and strains

Q. No	Question	M	CO	BL
1.	Explain the different kinds of forces with suitable examples. Sketch the force system for each type and mention one practical application where each force is encountered.	10	1	2
2.	Determine the magnitude and direction of the resultant force acting on the hook shown in the figure. 	10	1	3

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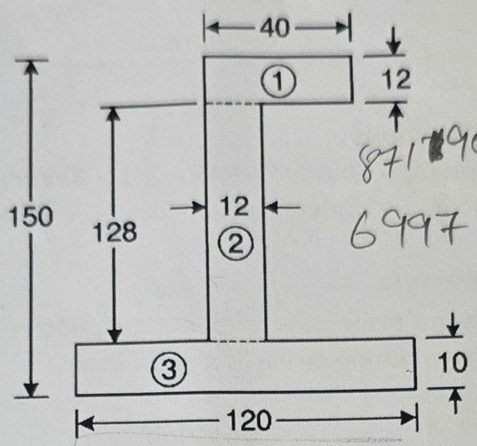
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Q. No	Question	M	CO	BL
3.	For the composite cross-section shown in the figure, determine the moment of inertia of the section about the horizontal centroidal axis. 	10	1	3
4.	In an experiment, a bar of 30 mm diameter is subjected to a pull of 60 kN. The measured extension on gauge length of 200 mm is 0.09 mm and the change in diameter is 0.0039 mm. Calculate the bulk modulus and shear modulus.	10	2	3
5.	A rectangular bar of cross-sectional area 10,000 mm^2 is subjected to an axial load of 20 kN. Determine the normal and shear stresses on a section which is inclined at an angle of 30° with the normal cross-section of the bar.	10	2	3

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