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CBGS SCHEME

21ENG26

Second Semester B.Arch. Degree Examination, June/July 2025**Building Structure - I**

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.**Module-1**

- 1 a. What is concrete? What are properties of concrete. What are the advantages and disadvantages of concrete? (10 Marks)
- b. Explain briefly the various types of load act on a structure with neat sketch. (10 Marks)

OR

- 2 a. A RCC beam of size 300mm × 450mm and a length of 10m having unit weight of RCC 25 KN/m³, calculate the dead load. (06 Marks)
- b. Differentiate between wind load and seismic load. (06 Marks)
- c. Write important properties of wood, aluminium, glass and steel. (08 Marks)

Module-2

- 3 a. What is a force? What are the characteristics of force. (10 Marks)
- b. Determine the resultant in magnitude and direction for the forces shown in fig. Q.3(b).

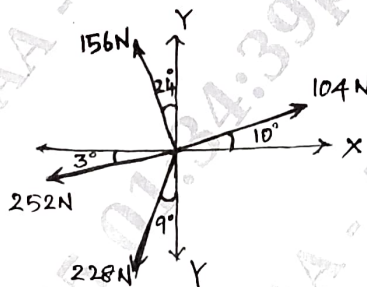


Fig. Q.3(b)

(10 Marks)

OR

- 4 a. Explain free body diagram with 3 examples. (10 Marks)
- b. A lamp weighing 5N is suspended from the ceiling by a chain. It is pulled aside by a horizontal cord until the chain makes an angle of 60° with ceiling as shown in fig. Q 4(b). Find the tensions in the chain and the cord.

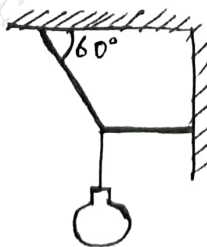


Fig. Q.4 (b)

(10 Marks)

Module-3

- 5 a. Explain a couple. List the characteristics of couple. (10 Marks)
 b. Find the resultant of the force system shown in fig. Q.5(b) in magnitude direction and position with respect to A.

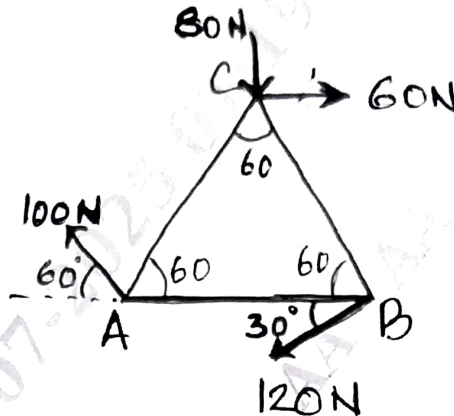


Fig. Q.5(b)

(10 Marks)

OR

- 6 a. Explain the different types of support, load and beam. (10 Marks)
 b. Determine the support reaction for the beam shown in fig. Q. 6(b)

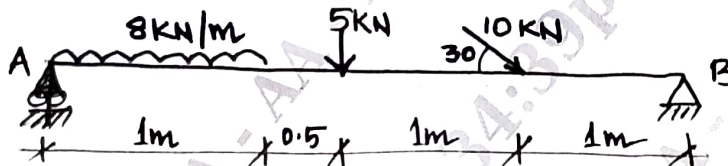


Fig. Q. 6(b)

(10 Marks)

Module-4

- 7 a. Explain the following terms (08 Marks)
 i) Center of gravity
 ii) Centroid
 iii) Axis of symmetry
 iv) Radius of gyration
 b. Find the centroid of T-section shown in fig. Q.7(b).

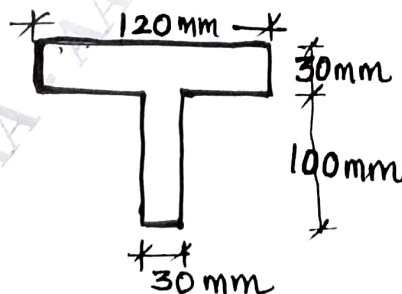


Fig. Q. 7 (b)

(12 Marks)

OR

- 8 a. State parallel axis theorem and perpendicular axis theorem with neat sketch and formula. (08 Marks)
- b. Find the moment of inertia of the given section about the horizontal centroidal axis.

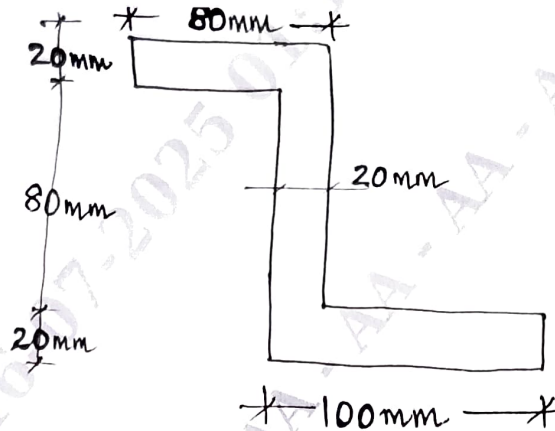


Fig. Q.8(b)

(12 Marks)

Module-5

- 9 a. Explain with neat sketch.
- Perfect frame
 - Deficient frame
 - Redundant frame
- b. What are the assumptions made in the analysis of truss. (06 Marks)
- c. Find the forces in the members AB, AC, BC of truss shown in fig. Q.9(c) (04 Marks)

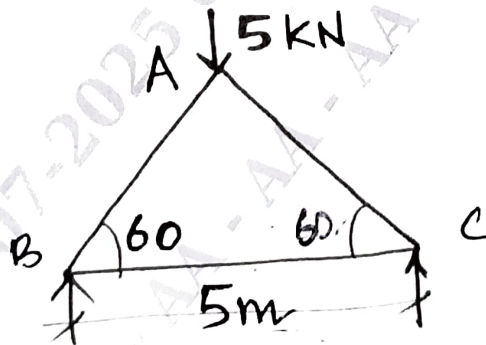


Fig. Q.9 (c)

(10 Marks)

OR

- 10 a. Explain with neat sketch method of joints.
b. Determine the forces in all members of the truss shown in fig. Q. 10(b).

(10 Marks)

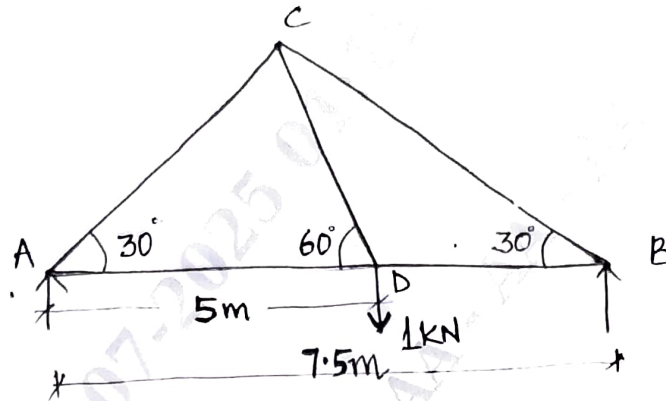


Fig. Q.10(b)

(10 Marks)
