U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

May 2023 Semester End Main Examinations

Programme: B.E. **Semester: I**
Branch: Common to all Branches **Duration: 3 hrs.**
Course Code: 22CV1ESICV **Max Marks: 100**
Course: Introduction to Civil Engineering **Date: 19.05.2023**

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

MODULE - I

1 a) State and explain the scope of i) structural engineering **08**
ii) Hydraulics and water resources Engineering.
iii) Transportation Engineering.

b) Explain the contribution of each ingredient of a concrete mix. **06**

c) What is Foundation? Explain different types of foundations. **06**

MODULE - II

2 a) State and explain the smart buildings. **06**

b) Explain briefly i) Urban flood control system. **08**
ii) Solid Waste management.

c) State and explain the Intelligent Transport system. **06**

MODULE - III

3 a) Determine the magnitude and direction of the resultant force for the force system shown in fig.Q.3(a), Locate the resultant force with respect to point 'D'. **10**

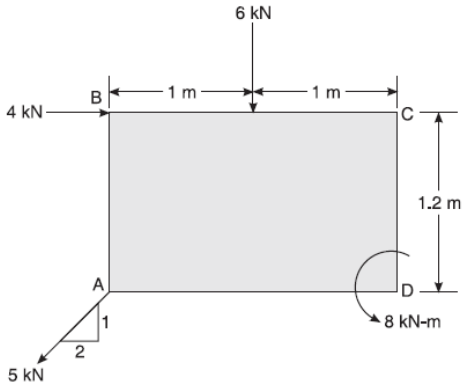


fig.Q.3(a)

b) Find Resultant force for the system shown in fig Q3(b). **10**

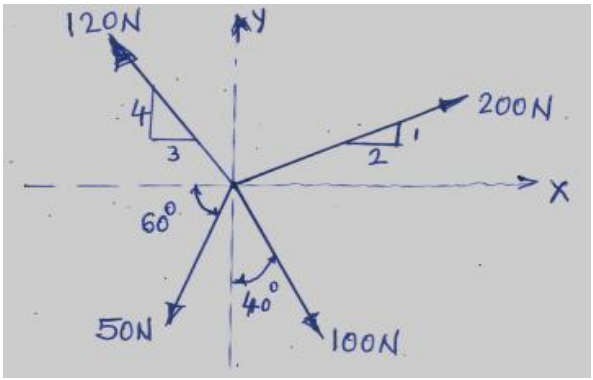


fig Q3(b)

OR

4 a) In fig.Q.4(a), portion BC of the string is horizontal, and pulley is frictionless. Determine tension in different parts of the string. Also, determine the weights W_1 and W_2. **10**

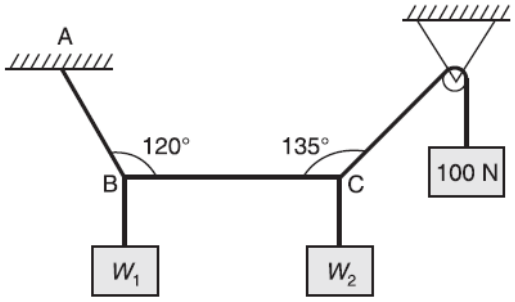


fig.Q.4(a)

b) Determine the resultant of the three forces of the simple truss shown in Fig. Q4(b). Specify the points on x and y axes through which the resultant must pass with respect to point 'O'. **10**

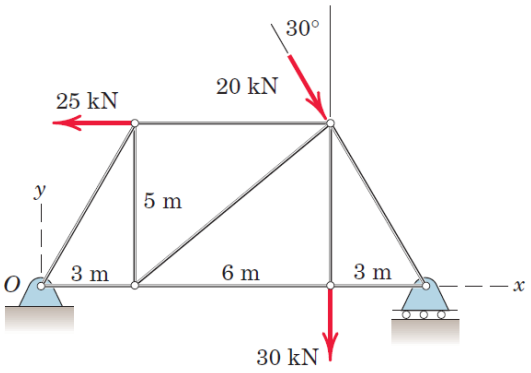


Fig.Q.4(b)

MODULE - IV

5 a) Locate the coordinates of the centroid a dam section about point 'O' as shown in fig.Q.5(a). **08**

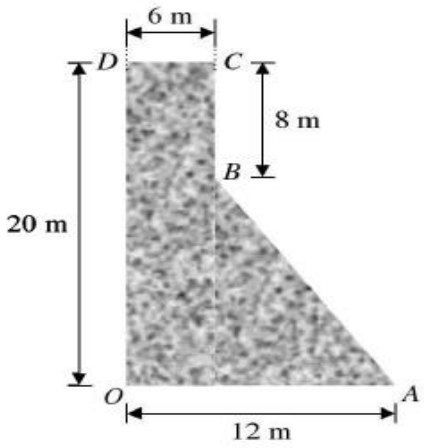


fig.Q.5(a)

b) Determine the centroid of the plane lamina for the Fig Q5 (b) shown. **12**

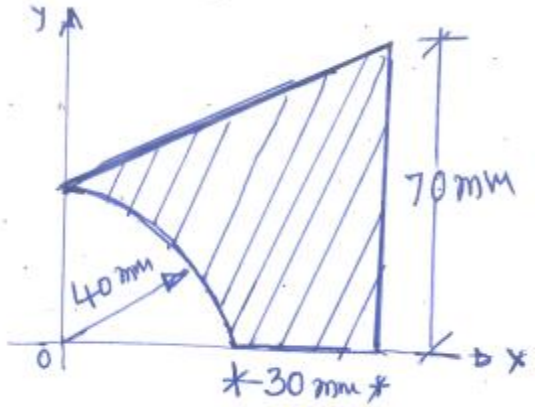


Fig Q5 (b)

MODULE - V

6 a) Find the moment of inertia of the shaded portion shown in fig.Q.6(a), about the axis A-A. Also, determine the radius of gyration. **10**

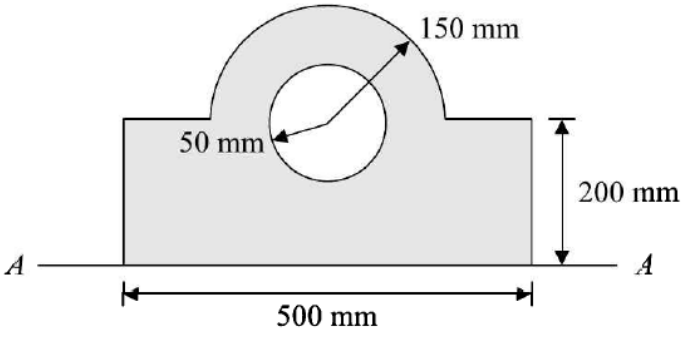


fig.Q.6(a)

b) Determine the second moment of area and radius of gyration about the vertical centroidal axis for the plane area shown in Fig Q6(b). **10**

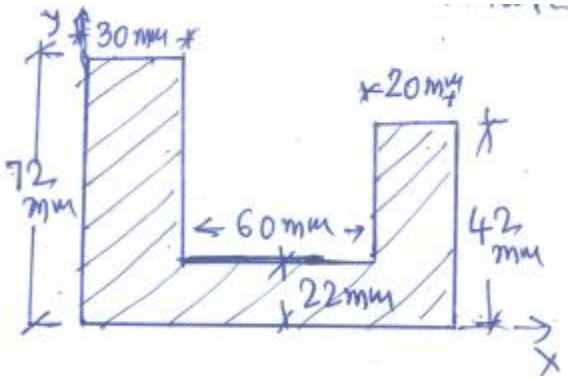


Fig Q6(b).

OR

7 a) Find the moment of inertia of the section shown in the fig.Q.7(a) about the horizontal centroidal axis. **10**

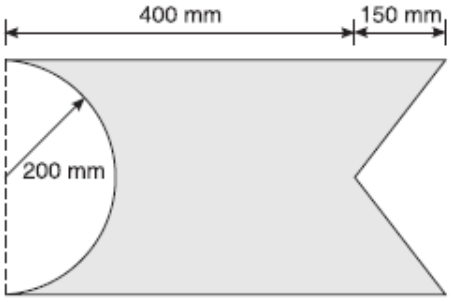
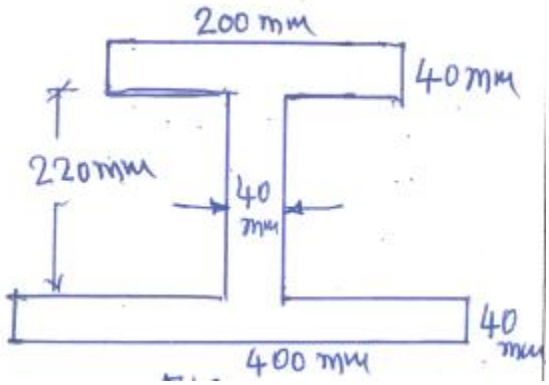


fig.Q.7(a)

b) Determine polar radius of gyration of plane lamina shown in FigQ7(b) with respect to centroidal axes. **10**



FigQ7(b)

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