CBCS SCHEME

USN | | | | | | | | | | |

21ENG26

Second Semester B.Arch. Degree Examination, June/July 2024
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. Explain the following with examples :
i) Dead load
ii) Live load
iii) Wind load
iv) Earthquake load. **(10 Marks)**

b. Explain the building materials :
i) Steel ii) Wood iii) Glass iv) Aluminium. **(10 Marks)**

OR

2 a. Explain advantages and disadvantages of wood, steel, concrete, glass. **(10 Marks)**

b. Explain the horizontal and vertical loads acting on structures. **(10 Marks)**

Module-2

3 a. Explain the classification of mechanics. **(10 Marks)**

b. The resultant of a 2 forces, one of which is double the other is 260N. If the direction of large force is reversed and the other remains unaltered, the resultant reduces the 180N. Determine the magnitude of forces and the angle between the forces. **(10 Marks)**

OR

4 a. Explain :
i) Displacement
ii) Velocity
iii) Acceleration
iv) Momentum
v) Rigid body. **(10 Marks)**

b. Two forces acting on a body are 500N and 1000N as shown in Fig.Q4(b). Determine the third force F such that the resultant of 3 forces is 1000N directed at 45° to x-axis.

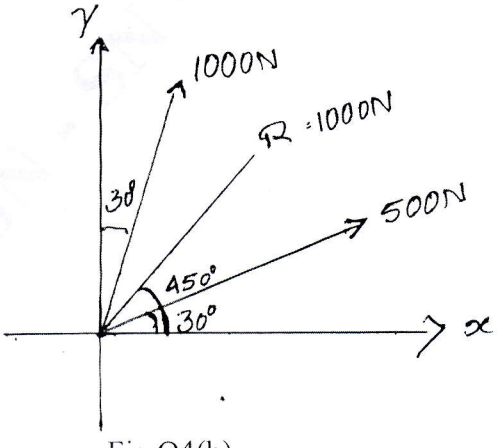

Fig.Q4(b) **(10 Marks)**

Module-3

5 a. Explain the types of supports with sketches. **(10 Marks)**

b. A simply supported beam AB of span 6m carries point load of 3kN and 6kN at a distance of 2m and 4M form the left end A as shown in Fig.Q5(b). Find the reactions at A and B.

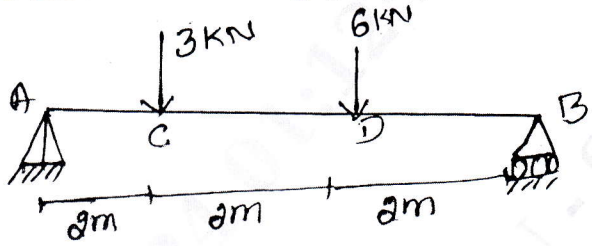

Fig.Q5(b) **(10 Marks)**

OR

6 a. State and prove Varignon's theorem. **(10 Marks)**

b. Four parallel forces of magnitude 100N, 150N 25N and 200N are shown in Fig.Q6(b). Determine the magnitude of resultant and also the distance of the resultant from point A.

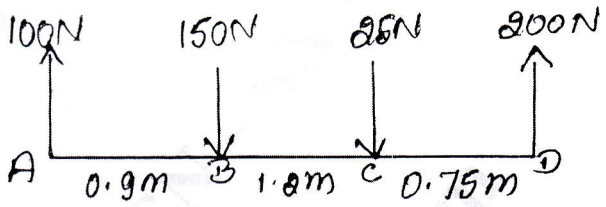

Fig.Q6(b) **(10 Marks)**

Module-4

7 Find the centriod.

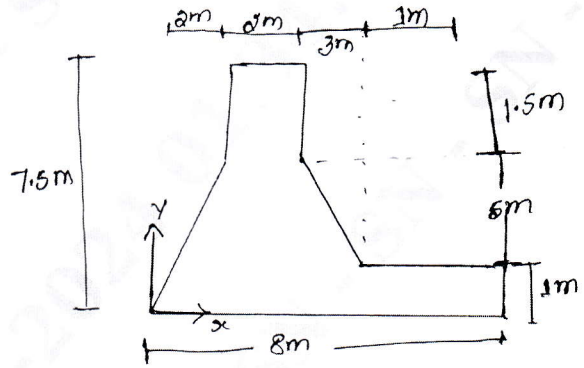

Fig.Q7 **(20 Marks)**

OR

8 a. State and explain parallel axis theorem. **(10 Marks)**

b. Determine the centriod.

Fig.Q8(b) **(10 Marks)**

Module-5

9 Determine the forces in all the member.

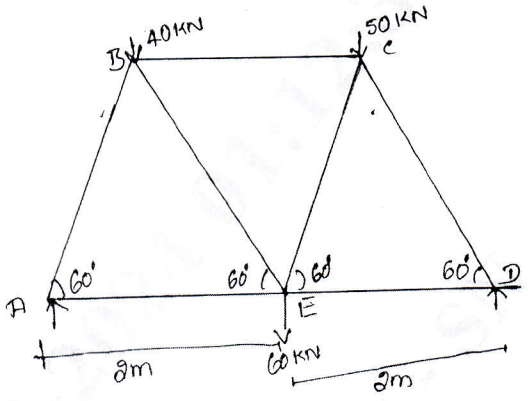

Fig.Q9 **(20 Marks)**

OR

10 Explain the following :

a. Moment of inertia
b. Perfect frame
c. Types of beam
d. Free body diagram
e. Different types of trusses. **(20 Marks)**

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