CBCS SCHEME

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

18ENG15

First Semester B.Arch. Degree Examination, Dec.2018/Jan.2019
Building Structures - I

Time: 3 hrs. Max. Marks:100

Note: 1. ***Answer any FIVE full questions, choosing ONE full question from each Module.***
2. ***Missing data, if any, may be suitably assumed and clearly stated.***

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

MODULE - 1

1 a. Explain the following with examples :
i) Live load ii) Dead load iii) Impact load iv) Earthquake load. **(10 Marks)**
b. What are the advantages and disadvantages of wood, steel, concrete, aluminum? **(10 Marks)**

OR

2 a. What are the important properties of concrete? Also mention the advantages and disadvantages of concrete. **(10 Marks)**
b. Write important properties of wood , steel , aluminum concrete. **(10 Marks)**

MODULE - 2

3 a. Define Mechanics. Explain the classification of Mechanics. **(06 Marks)**
b. Explain the principle of transmissibility of forces. **(04 Marks)**
c. Find the resultant of force system, Direction of force system shown in fig. Q3(c). **(10 Marks)**

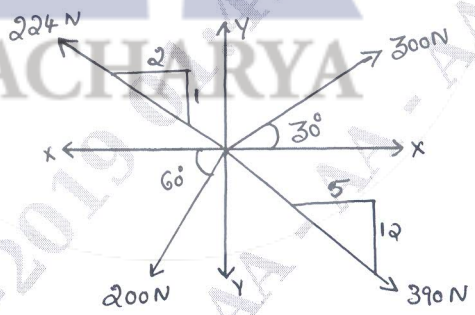

Fig. Q3(c)

OR

4 a. Define Force System. Briefly explain the classification of force system. **(10 Marks)**
b. 26kN force is the resultant of the two forces, one of which is as shown in fig.Q4(b). Determine the other force. **(10 Marks)**

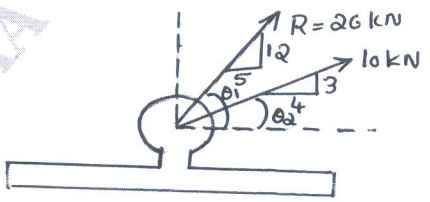

Fig. Q4(b)

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MODULE - 3

5 a. Define Couple. Explain the characteristics of couple. **(05 Marks)**

b. Find the magnitude and direction and distance of the resultant from the point 'A' for the system of forces shown in fig.Q5(b). **(15 Marks)**

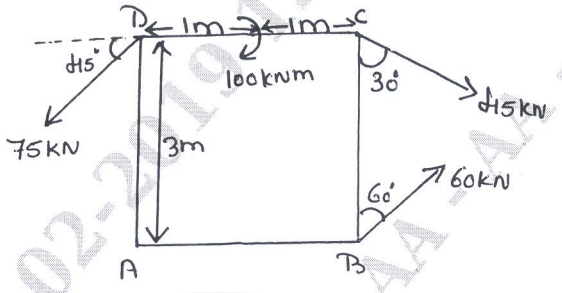

Fig. Q5(b)

OR

6 a. With neat sketches, explain different types of supports and loads. **(10 Marks)**

b. Determine the support reactions for the beam shown in fig.Q6(b). **(10 Marks)**

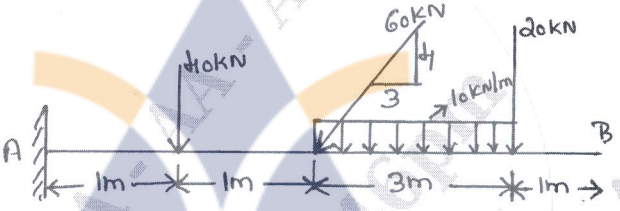

Fig. Q6(b)

MODULE - 4

7 a. Locate the centroid of composite section shown in fig.Q7(a). **(10 Marks)**

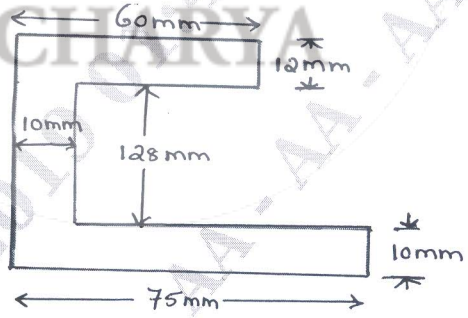

Fig. Q7(a)

b. Locate the centroid of shaded portion shown in fig. Q7(b). **(10 Marks)**

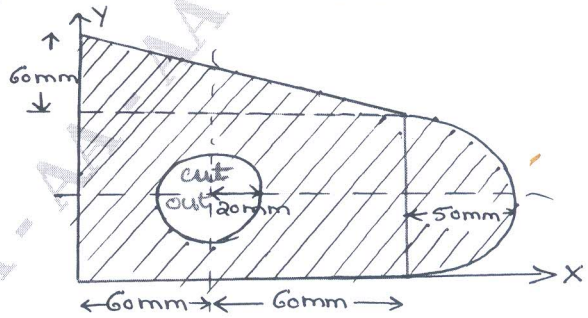

Fig. Q7(b)

OR

8 a. State and explain parallel axis theorem. **(05 Marks)**

b. Find the least radius of gyration about X - axis and Y – axis of the shaded area shown in fig.Q8(b). **(15 Marks)**

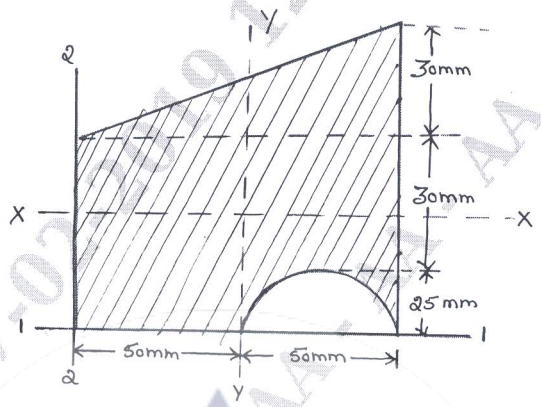

Fig. Q8(b)

MODULE - 5

9 a. Briefly explain the methods used to analyze the truss by method of Joints. **(11 Marks)**

b. Explain the following :

i) Perfect frame ii) Deficient frame iii) Redundant frame. **(09 Marks)**

OR

10 Analyse the truss shown in fig. Q10 by the method of joints. Tabulate the result and indicate the nature of force in the truss. **(20 Marks)**

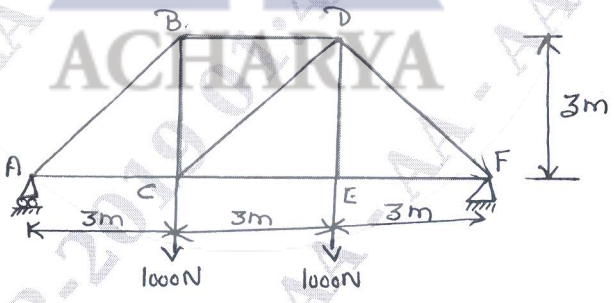

Fig. Q10

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