USN | | | | | | | | | | 18ENG15

First Semester B.Arch. Degree Examination, June/July 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. Assume missing data suitably.

Module-1

1   Write a brief note on concrete.   (20 Marks)

OR

2 a. Explain the following load with examples :
      i) Live load   ii) Dead load   iii) Impact load   iv) Earth quake load   (10 Marks)
   b. Write important properties of steel, wood, aluminium glass.   (10 Marks)

Module-2

3 a. Define mechanics. Explain classification of mechanics.   (05 Marks)
   b. Explain the characteristics of a force.   (05 Marks)
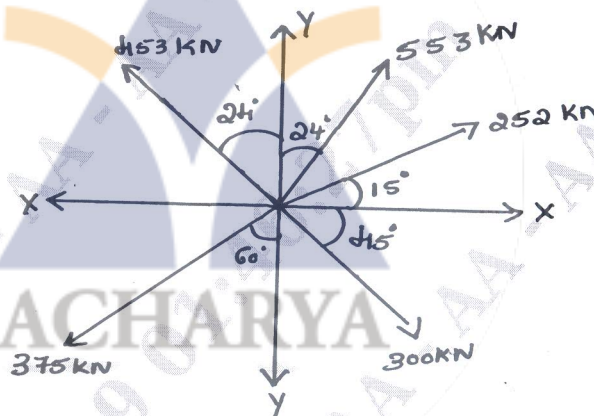   c. Find the magnitude and direction of the resulted force of the coplanar force system shown in Fig Q3(c)

Fig Q3(c)   (10 Marks)

OR

4 a. Explain the principle of transmissibility.   (05 Marks)
   b. Briefly explain the classification of force system.   (10 Marks)
   c. Define moment. Calculate the moment about point A for the given Fig Q4(c) which shows the forces acting on a lamina of equilateral triangular shape.
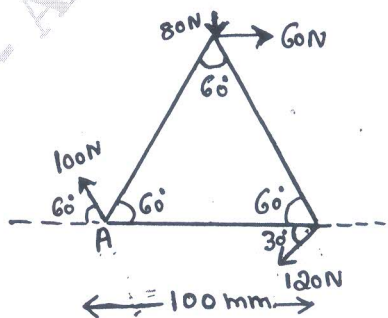

Fig Q4(c)   (05 Marks)

Module-3

5 a. Determine the magnitude, direction and position of the resultant force with reference to the point 'A' for the non coplanar force system shown in Fig Q5(a)
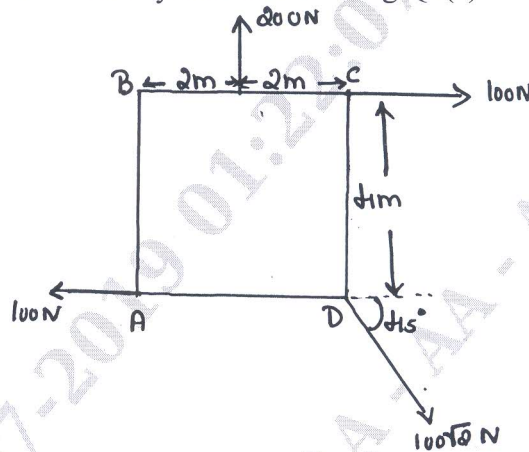

Fig Q5(a)   (12 Marks)

b. Define couple and explain properties of couple and types of couple.   (08 Marks)

OR

6 a. Explain the different types of supports, beams and loads.   (10 Marks)
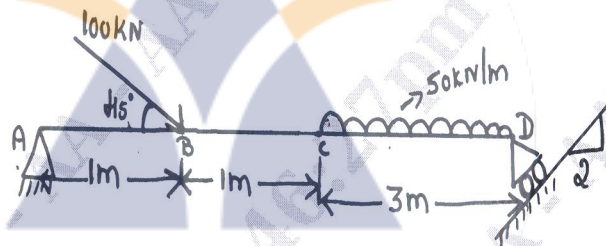   b. For the beam with loading shown in Fig Q6(b), determine the reactions at the supports.

Fig Q6(b)   (10 Marks)

Module-4

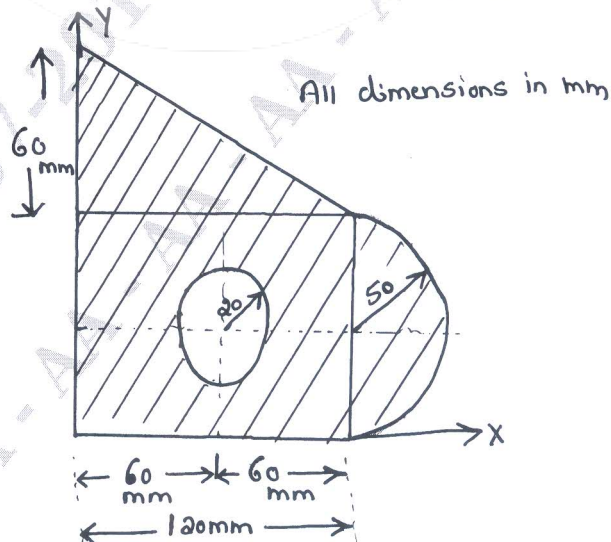7 a. Determine the centroid of the should area shown in Fig Q7(a)

Fig Q7(a)   (10 Marks)

2 of 3

b. Locate the centroid of the shaded area shown in Fig Q7(b).
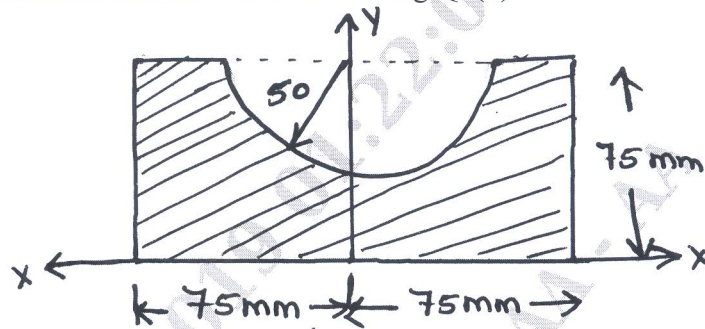

Fig Q7(b)   **(10 Marks)**

OR

8   a. State parallel axis theorem and perpendicular axis theorem.   **(06 Marks)**
    b. Determine the moment of inertia of the unequal I-section shown in Fig Q8(b) above its centroidal axis.
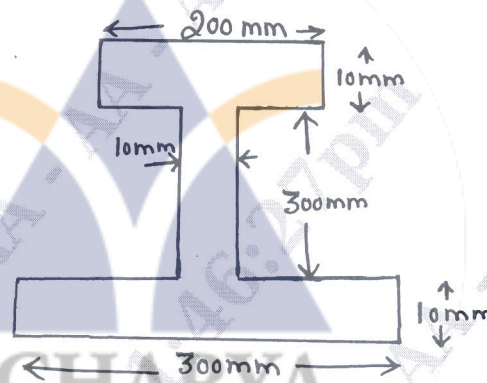

Fig Q8(b)   **(14 Marks)**

Module-5

9   Briefly explain the methods used for the analysis of truss.   **(20 Marks)**

OR

10 Analyse the truss shown in Fig Q10 by method of joints.   **(20 Marks)**
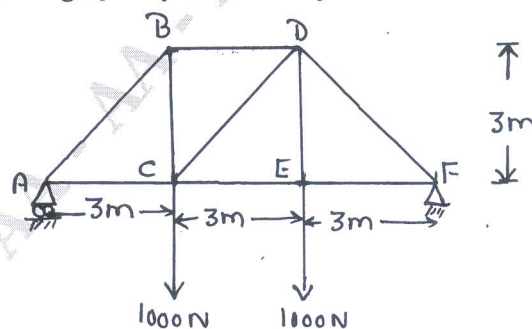

Fig Q10

* * 3 of 3 * * *