CBCS Scheme

USN ☐☐☐☐☐☐☐☐☐☐ 15ENG1.5

First Semester B.Arch. Degree Examination, June/July 2017
Building Structures – I

Time: 3 hrs. Max. Marks: 100

Note: Answer any FIVE full questions, choosing one full question from each module.

Module-1

1 a. Define a structure. Give examples. (10 Marks)
   b. Explain the load path of any structures in detail. (10 Marks)

OR

2 a. What are the different types of structural systems? Give examples. (10 Marks)
   b. Explain moment frame, cable stayed, dome, shell, and vault with neat sketches. (10 Marks)

Module-2

3 a. What are the structural materials used for domestic and industrial buildings? (10 Marks)
   b. Explain the mechanical properties of wood, masonry, steel and concrete. (10 Marks)

OR

4 a. What are the different types of loads subjected on a structure? (10 Marks)
   b. Briefly explain tall buildings and long span buildings. (10 Marks)

Module-3

5 a. Explain the principle of transmissibility of forces with an example. (10 Marks)
   b. Prove Lami's theorem. (10 Marks)

OR

6 a. What are the different types of supports? Explain with neat sketches. (10 Marks)
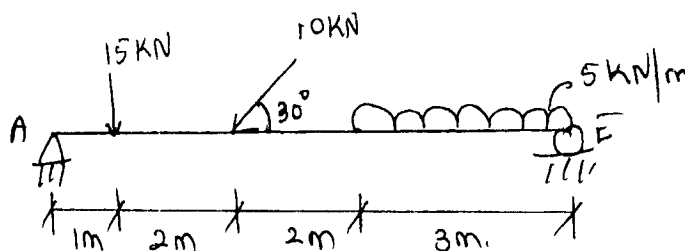   b. Calculate the reactions @ A & E. (10 Marks)

Fig.Q.6(b)

Module-4

7 a. Explain Hooke's law. Derive the equation $\Delta L = \dfrac{PL}{AE}$. (10 Marks)
   b. A bar of 300mm length and of 15mm diameter is stretched by 0.8mm due to axial pull of 20kN. Calculate stress, strain and also modulus of elasticity. (10 Marks)

OR

8 a. Define resultant and equilibrant of forces. (10 Marks)
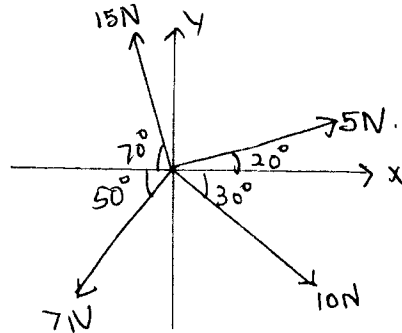b. Calculate the resultant of given coplanar concurrent forces by analytical method. (10 Marks)

Fig.Q.8(b)

Module-5

9 a. Define truss. Explain with neat sketch the different types of truss configuration. (10 Marks)
b. Explain the concept of truss triangulation. (10 Marks)

OR

10 a. Explain the different methods used to analyze the truss. (10 Marks)
b. Assume any truss configuration ad calculate the dead weight of the truss and roof cover. Data can be assumed suitably. (10 Marks)

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