CBCS Scheme

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

15ENG1.5

First Semester B.Arch. Degree Examination, Dec.2015/Jan.2016

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 any missing data suitably.

Module-1

1 a. Define Structures. Name and sketch some manmade and natural cantilever. **(10 Marks)**

b. Describe the properties and draw an arch roof (indicate load path and load transfer). **(10 Marks)**

OR

2 Draw and describe the structural principles of a typical building of your own choice (indicate load path and load transfer). **(20 Marks)**

Module-2

3 a. What are the different materials used in structural building? **(10 Marks)**

b. What are the advantages and disadvantages of Wood, Steel, Concrete, masonry and fabric structures? **(10 Marks)**

OR

4 a. Define dead load and live load with examples. **(10 Marks)**

b. Describe the difference between static and dynamic load with examples. **(10 Marks)**

Module-3

5 a. Define law of transmissibility of forces with examples. **(10 Marks)**

b. Calculate resultant of given coplanar concurrent forces by analytical. **(10 Marks)**

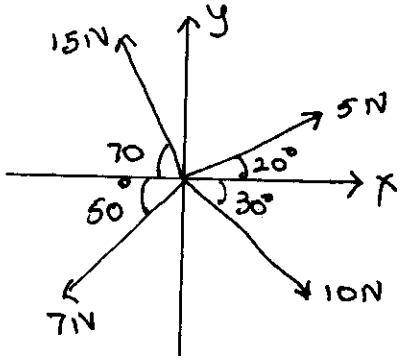

Fig. Q5(b)

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OR

6 a. What are the different types of supports and loads? **(10 Marks)**

b. Calculate reactions at support A and E. **(10 Marks)**

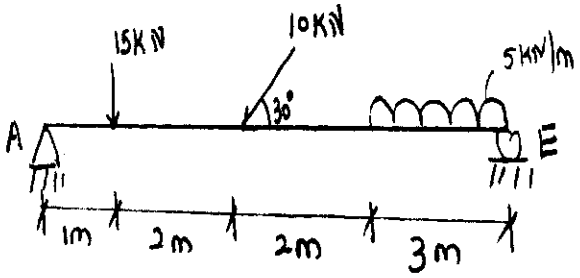

Fig. Q6(b)

Module-4

7 a. Define Hooke's Law. **(05 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. **(15 Marks)**

OR

8 a. Define law of parallelogram of forces and Varignon's theorem. **(10 Marks)**

b. Forces are acting along a equilateral triangle of side 1m. Calculate moment @ B.

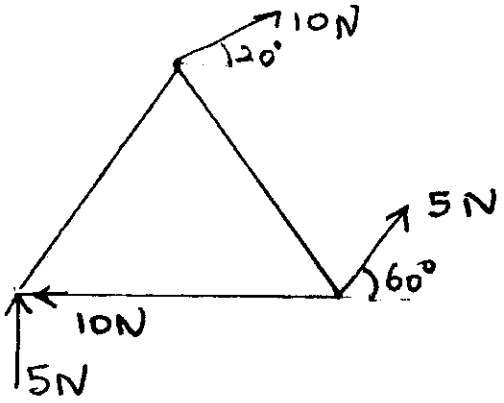

Fig. Q8(b)

(10 Marks)

Module-5

9 a. Why is triangle shape considered to be more stable? Give examples. **(10 Marks)**

b. What are the different truss configurations with sketch? **(10 Marks)**

OR

10 Explain two methods used to analyse the trusses. **(20 Marks)**

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