

# CBCS Scheme

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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)

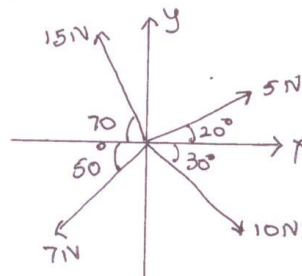


Fig. Q5(b)

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.

OR

- 6 a. What are the different types of supports and loads? (10 Marks)  
 b. Calculate reactions at support A and E. (10 Marks)

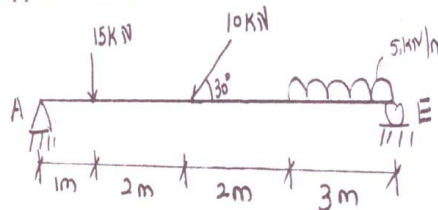


Fig. Q6(b)

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.

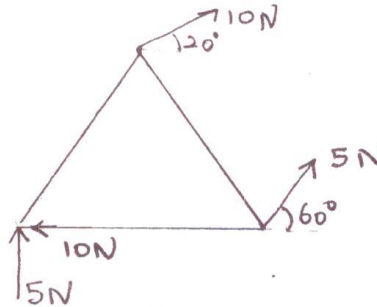


Fig. Q8(b)

(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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