



# CBCS SCHEME

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21CV646

## Sixth Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025 Alternative Building Materials

Time: 3 hrs.

Max. Marks: 100

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

### Module-1

- 1 a. Discuss the concept of embodied energy in building materials. (10 Marks)
- b. Explain any four environmental implications caused by building materials. (10 Marks)

OR

- 2 a. Discuss recycling of any two building wastes. (10 Marks)
- b. Explain the various Biomass resources for building. (10 Marks)

### Module-2

- 3 a. Discuss the raw material used for stabilized mud block and explain its manufacturing process. (08 Marks)
- b. Discuss how the following factors affect the compressive strength of masonry:  
(i) Strength of masonry unit (ii) Moisture absorption (06 Marks)
- c. A solid concrete block prism consists of 4 concrete blocks of size  $160 \times 80 \times 80$  mm and the joint thickness is 2 cm. The modulus of block and mortar are 10,000 MPa and 600 MPa respectively. The Poisson's ratio of block is 0.1 and that of mortar is 0.15. Determine the magnitude and nature of lateral stress in block and mortar when vertical stress is 6.0 MPa. (06 Marks)

OR

- 4 a. Write a note on :  
(i) Laterite block (ii) Hollow Clay Block. (08 Marks)
- b. Discuss the factors to be considered for selection of mortar. (06 Marks)
- c. Explain the following briefly: (i) Masonry prism (ii) Masonry wallets (06 Marks)

### Module-3

- 5 a. With a neat sketch discuss the manufacturing process of lime. (10 Marks)
- b. Discuss the application of following industrial waste in building construction.  
(i) Fly ash (ii) Blast furnace slag (iii) Marble Dust (iv) Demolished building waste (10 Marks)

OR

- 6 a. Discuss the various types of fibres that can be used in fibre reinforced plastics. (10 Marks)
- b. Discuss the manufacturing process of Dry blending and wet blending of Lime pozzolana cement mortar. (10 Marks)

### Module-4

- 7 a. Discuss the following with neat sketches:  
(i) Rammed Earth Wall (ii) Cavity Wall (10 Marks)
- b. With the help of neat sketch, explain the following :  
(i) Filler slab (ii) Composite beam panel roof. (10 Marks)

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

- 8 a. Explain the concept of ferrocement. Also discuss the raw materials used. (10 Marks)  
b. Discuss the following :  
(i) Mivan construction technique  
(ii) Top down construction (10 Marks)

**Module-5**

- 9 a. Discuss the machines used in following stages of concrete:  
(i) Mixing  
(ii) Transportation of concrete. (10 Marks)  
b. Explain briefly about the cost saving technique in planning, design and construction. (10 Marks)

OR

- 10 a. List the various equipments used for production of stabilized mud block and explain any one in brief. (10 Marks)  
b. Write a note on precast elements and discuss its advantages and disadvantages. (10 Marks)

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