

**Sixth Semester B.E. Degree Examination, June/July 2019**  
**Alternative Building Materials**

Time: 3 hrs.

Max. Marks: 80

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

**Module-1**

- 1 a. Explain the need for alternate building materials. (06 Marks)  
b. Discuss about green building concepts. (10 Marks)

**OR**

- 2 a. Explain about Rainwater harvesting and list the methods, merits and demerits. (08 Marks)  
b. What are the commonly used environment friendly and cost effective building technologies? Explain any two. (08 Marks)

**Module-2**

- 3 a. What are the alternatives for conventional stone and bricks in masonry? (04 Marks)  
b. List out the characteristics of concrete blocks. (04 Marks)  
c. Explain the process of making stabilized mud blocks. (08 Marks)

**OR**

- 4 a. List out the requirements of mortar. (04 Marks)  
b. What are the factors affecting compressive strengths of the masonry? (04 Marks)  
c. A brick masonry prism is made up of 5 bricks joined by mortar of thickness 20mm. The brick is 75mm in thickness. The prism is subjected to a uniform vertical stress of  $4.0 \text{ N/mm}^2$ . The brick has a modulus of  $500 \text{ N/mm}^2$  and mortar has a modulus of  $8000 \text{ N/mm}^2$ . Determine the horizontal lateral stress in brick and mortar. Take  $\mu_b = 0.1$  and  $\mu_m = 0.15$ . (08 Marks)

**Module-3**

- 5 a. Discuss about different sources of lime stones. (04 Marks)  
b. Name the different types of pozzolana materials. Explain any two in detail. (08 Marks)  
c. What is meant by GFRP? List the fibre reinforcing materials. (04 Marks)

**OR**

- 6 a. List the agro wastes and mention its applications in building construction. (08 Marks)  
b. What are the sources of industrial wastes? (04 Marks)  
c. Write short note on construction and demolition wastes. Mention its merits and demerits. (04 Marks)

**Module-4**

- 7 a. Explain any two alternatives for wall construction with neat sketches. (08 Marks)  
b. What is meant by ferrocement? List the materials used for ferrocement and mention the application of ferrocement. (08 Marks)

**OR**

- 8** a. Write the concepts of filler slab method and explain any two methods in detail. (08 Marks)  
b. Write short notes on:  
(i) Composite beam and panel roofs (03 Marks)  
(ii) Construction of masonry domes and vaults. (05 Marks)

**Module-5**

- 9** Briefly explain about:  
a. Types of machines used for manufacture of concrete (08 Marks)  
b. Methods of production of precast elements. (08 Marks)

**OR**

- 10** a. Explain the cost saving techniques in planning design and construction. (08 Marks)  
b. Write the difference between conventional and alternative building materials. (08 Marks)