

Register No.: ..... Name: .....

**SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)**

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

**SEVENTH SEMESTER B.TECH DEGREE EXAMINATION (R), DECEMBER 2023****CIVIL ENGINEERING****(2020 SCHEME)****Course Code : 20CET491****Course Name: Modern Construction Materials****Max. Marks : 100****Duration: 3 Hours****PART A*****(Answer all questions. Each question carries 3 marks)***

1. Distinguish high performance concrete and high strength concrete.
2. State the advantages of self-compacting concrete.
3. Describe the advantages and disadvantages of calcium silicate brick.
4. Discuss the properties and application of ferrocement.
5. Enlist any four commercially available water proofing compounds.
6. Discuss the concept of polymer floor finishes.
7. Enlist the pros and cons of bamboo as a construction material.
8. Describe the uses of municipal incinerated bottom ash.
9. Enumerate the applications of shape memory alloy in building construction.
10. Enlist the uses of plastics and bioplastics in construction.

**PART B*****(Answer one full question from each module, each question carries 14 marks)*****MODULE I**

11. a) Summarise the types, properties and uses of light weight concrete. (10)
- b) Describe the properties of fibre reinforced concrete. (4)

**OR**

12. a) Describe the different types of polymer concrete. (10)
- b) Summarise the properties and uses of geopolymer concrete. (4)

**MODULE II**

13. a) Explain the different industrial products which can substitute wood. (10)
- b) Discuss the advantages of using glass reinforced gypsum in construction. (4)

**OR**

14. a) Describe the properties and engineering application of fibre reinforced polymer. (10)  
b) Discuss the properties and types of bitumen. (4)

**MODULE III**

15. a) Explain the different types of acoustic treatment. (10)  
b) What is drywall ? List any two dry wall materials. (4)

**OR**

16. a) Explain the different types of water proofing materials. (10)  
b) Enumerate the factors affecting the type and amount of insulation to be used in a building. (4)

**MODULE IV**

17. a) Discuss the characteristics and uses of three sustainable construction materials. (10)  
b) Differentiate U value and R value of a building component. (4)

**OR**

18. a) Describe the site specific factors for earth-sheltered home design. Discuss its advantages and disadvantages. (10)  
b) Discuss linoleum flooring and its sustainability aspects. (4)

**MODULE V**

19. a) Discuss the application of smart and intelligent materials in building construction. (10)  
b) Explain the benefits of EPS thermocole in construction. (4)

**OR**

20. a) Discuss the applications of biopolymer in Geotechnical Engineering. (10)  
b) Describe an electrochromic material by citing examples and applications in building construction. (4)

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