



P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Third Semester, M.Tech. - Civil Engineering (MCAD)

Semester End Examination; Jan. / Feb. - 2021

Advances in Concrete and Geosynthetics

Time: 3 hrs

Max. Marks: 100

Note: Answer FIVE full questions, selecting ONE full question from each unit.

UNIT - I

- | | | |
|------|---|----|
| 1 a. | Explain the micro structure of the cement concrete and its significance. | 10 |
| b. | Explain the use of Nano material in concrete and its influence on the properties of concrete. | 10 |
| 2 a. | Explain the factors affecting the durability of concrete. | 10 |
| b. | Explain the sulphate attack and mention the methods of controlling it. | 10 |

UNIT - II

- | | | |
|------|--|----|
| 3 a. | Explain the principle and mechanism of Rebound hammer test along with its limitations. | 10 |
| b. | Explain the mechanism involved in the measurement of ultrasonic pulse velocity of concrete with a neat sketch. | 10 |
| 4 a. | Explain the different types of fibres used in the concrete. List the factors affecting the fibre reinforced concrete strength. | 10 |
| b. | Explain the techniques involved in the manufacture of Ferro cement. | 10 |

UNIT - III

- | | | |
|------|--|----|
| 5 a. | What is Ready Mix Concrete? Discuss the advantages and limitations of RMC in construction. | 10 |
| b. | Explain the need for sprayed and pumped concrete in construction. | 10 |
| 6 a. | Explain the properties and classification of light weight concrete. | 10 |
| b. | Explain the method of achieving high density concrete. | 10 |

UNIT - IV

- | | | |
|------|---|----|
| 7 a. | What are the important characteristics of high performance concrete and polymer impregnated concrete? | 10 |
| b. | What are the requirements of self-compacting concrete? Mention the various tests to check the performance to self-compacting concrete in fresh state. | 10 |
| 8 a. | Write a short note on engineered cementitious composite and smart concrete. | 10 |
| b. | Write a short note on bacterial and translucent concrete. | 10 |

UNIT - V

- | | | |
|-------|--|----|
| 9 a. | What are Geo-synthetics? Explain the application of Geo-synthetics. | 10 |
| b. | Explain the Geo-nets and Geo-membranes, along with its applications. | 10 |
| 10 a. | Explain the Woven and Non-Woven Geo-textiles along with its characteristics. | 10 |
| b. | Explain the properties of Geo-synthetic as reinforcement, containment and barriers, along with its applications. | 10 |