

**320671(20)**

**B. E. (Sixth Semester) Examination, April-May 2020**

**(New Scheme)**

**(Civil Engg. Branch)**

**(PROFESSIONAL ELECTIVE-I)**

**MODERN CONSTRUCTION MATERIALS**

***Time Allowed : Three hours***

***Maximum Marks : 80***

***Minimum Pass Marks : 28***

***Note : Attempt all questions. Part (a) of each question is compulsory carrying 2 marks each.***

***Solve any two from (b), (c), (d) carrying 7 marks each.***

**Unit-I**

1. (a) Define ultra high strength of concrete. 2
- (b) What are the differences between High Performance

Concrete (HPC) and High Strength Concrete (HSC)? Also explain the section of materials for making HPC. 7

(c) Explain high strength concrete. What are the various methods of making high strength concrete? 7

(d) Explain various types of fibres used in cement concrete. What are the factors which affect properties of FRC? 7

**Unit-II**

2. (a) Give classification of metals. 2

(b) What are various forms of steel alloys? Explain. 7

(c) What are properties and advantages of using Aluminium? 7

(d) Write short notes on the following alloys : 7

(i) Copper alloys

(ii) Zinc alloys

(iii) Lead alloys

(iv) Nickel alloys

**Unit-III**

3. (a) Why composites are important? 2

(b) Enumerate typical properties of composite materials? Explain matrix and dispersed phase of microscopic composite. 7

(c) What are the methods used for polymerization? Explain. 7

(d) What are the different types of fibre used in fibre reinforced polymer? 7

**Unit-IV**

4. (a) Define water proofing. 2

(b) Explain various modern water proofing compounds with their action. 7

(c) Explain different types of facade materials used in building. 7

(d) Write short notes on the following : 7

(i) Modified asphalt

(ii) Water proof membrane

**Unit-V**

- 5. (a) What are smart fluid? 2
- (b) What is piezoelectric materials? Write some applications. 7
- (c) What is green building? Discuss ecofriendly structure. 7
- (d) Explain smart structure with suitable examples. 7