

320631(20)

B. E. (Sixth Semester) Examination, 2020

(Old Scheme)

(Civil Branch)

MODERN CONSTRUCTION MATERIALS

(Elective-I)

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt all questions. Part (a) of each question is compulsory and carries 2 marks. Attempt any two parts from b, c and d of each question and carries 7 marks.

Unit-I

1. (a) Enumerate any two types of non-conventional concrete.

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- (b) Explain the role of admixtures in manufacturing of HPC.
- (c) What is FRC? Explain the various types of Fibres used in FRC.
- (d) Explain the criteria for selecting the materials for making High Strength concrete.

Unit-II

- 2. (a) What is an alloy? Give example.
- (b) Write short notes on :
 - (i) High speed steel
 - (ii) Stainless steel
- (c) What is the difference between ferrous alloys and nonferrous alloys? Explain aluminum alloys briefly.
- (d) Explain the properties and uses of wrought iron.

Unit-III

- 3. (a) Define Polyesters.

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- (b) Discuss :
 - (i) Creep and relaxation in plastics
 - (ii) Stress strain curve for plastics
- (c) What are the different types of fibre used in Fibre reinforced polymers? Explain brief.
- (d) Explain various Industrial and Civil engineering application of Fibre reinforced polymers.

Unit-IV

- 4. (a) What do you mean by water proofing compound?
- (b) Write short notes on :
 - (i) Waterproof membrane
 - (ii) Waterproof Asphalt paint
- (c) Explain the various Facade systems.
- (b) Write short notes on :
 - (i) Natural Flooring Material
 - (ii) Artificial Flooring Material

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Unit-V

5. (a) What do you mean by piezoelectric materials?
- (b) What are shape memory alloys? How it works?
Where shape memory alloys are used?
- (c) Write short notes on :
- (i) Magneto-strictive materials
 - (ii) Electro-rheological fluid
- (d) What are smart materials? Write different applications of smart materials.