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## Fifth Semester B.E. Degree Examination, Aug./Sept.2020 Special Concrete

Time: 3 hrs.

Max. Marks: 80

*Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.  
2. Use of light weight concrete design charts is permitted.*

### Module-1

- 1 a. Define special concrete. Briefly compare conventional concrete with special concrete with respect to following properties:  
i) Workability ii) Strength iii) Density iv) Durability. (10 Marks)  
b. What are the different types of fibers used in concrete? (03 Marks)  
c. Mention the applications of fiber reinforced concrete. (03 Marks)

OR

- 2 a. List at least any eight types of special concrete with two applications for each. (08 Marks)  
b. List all the factors affecting the properties of fiber reinforced concrete. Explain any three factors with graphs and sketches. (08 Marks)

### Module-2

- 3 a. Explain the mechanism of radiation shielding property of high density concrete with respect to X-rays and gamma-rays. (08 Marks)  
b. List out the characteristics of Self Compacting Concrete [SCC]. (05 Marks)  
c. What are the requirements of SCC? (03 Marks)

OR

- 4 a. Explain the different methods of placement of High density concrete. (08 Marks)  
b. Explain any two tests conducted on self-compacting concrete, with neat sketches. (08 Marks)

### Module-3

- 5 a. What is light-weight concrete? List out atleast seven applications of light weight concrete. (08 Marks)  
b. Explain the process of production of polymer impregnated concrete with flowchart. (08 Marks)

OR

- 6 a. Design the most economical light weight concrete mix for a minimum 28 days strength  $300\text{kg/cm}^2$  required for a structural work. Available aggregates are foamed slag, Aglite, Lytag and Leca.  
Control factor is 0.75, relative density not to exceed 1.75, required workability is medium to high. Setout dry batch weight and mix proportions, if the fine and coarse aggregates contains 5 and 3% of moisture by weight respectively. (11 Marks)  
b. List and explain applications of polymer impregnated concrete. (05 Marks)

**Module-4**

- 7 a. List all the characteristics of high strength concrete. (08 Marks)  
b. Explain briefly the methods of making high strength concrete. (08 Marks)

**OR**

- 8 a. What are the advantages of high strength concrete over conventional concrete? (06 Marks)  
b. List the applications of HSC. (04 Marks)  
c. Explain briefly the methods of making ultra high strength concrete. (06 Marks)

**Module-5**

- 9 a. Write a note on method of determining super plasticizer dosage in high performance concrete. (08 Marks)  
b. Describe the role of aggregates in obtaining High performance concrete. (08 Marks)

**OR**

- 10 a. Briefly explain the characteristics of HPC. (08 Marks)  
b. State and mention characteristics of different cement replacing materials in modern concreting techniques. (08 Marks)

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