CC-563

M. Tech. EXAMINATION, Dec. 2018

(Third Semester)

(B. Scheme) (Main & Re-appear)

CE(SE)

CES611

COMPOSITE MATERIALS

Time : 3 *Hours*]   [*Maximum Marks :* 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions only. All questions carry equal marks. However, a student should attempt at least *one* question from every section. Any data, if missing, can be suitably assumed. Use of scientific calculator is allowed.

Section A

1. What do you understand with the term toughness indices ? How can these be determined in fibre reinforced concrete ? Discuss the factors which affect toughness indices. **15**

2. Suggest how the workability of steel fibre reinforced concrete can be improved ? Also, discuss a test suitable for determination of workability of SFRC. **15**

Section B

3. What do you understand with the term cement efficiency factor ? Discuss the factors which affect cement efficiency factor. **15**

4. Why inclusion of fly ash in concrete is desired ? Explain various methods for addition of fly ash into concrete. **15**

Section C

5. Define the following terms with the help of examples and figures (if required) : **15**
   (i) Monomers
   (ii) Polymers
   (iii) Catalyst
   (iv) Promoters
   (v) Polymer Loading.

6. Discuss the properties of constituent materials for the production of ferrocement. Also, discuss various methods for its construction. **15**

Section D

7. Discuss the structural requirements of lightweight concrete. Discuss the phenomenon which affects its workability. How compressive strength *vs.* water-cement relationship is irrelevant for No fines concrete ? **15**

8. Define high performance concrete. Name the ingredients required for its production. How these ingredients help in achieving high performance in concrete ? **15**