(b) Discuss the improvement in structural properties with the impregnation of polymers into concrete and specify its applications accordingly. **7**

6. (a) Feerocement can be well used in the construction of boats. What guidelines for the constituent materials you will follow in the construction of boat ? Also, discuss the structural properties responsible for this suitability. **10**

(b) How feerocement can have better durability than conventional concrete ? **5**

Section D

7. (a) Define high performance concrete and discuss the requirements of its ingredient materials. **6**

(b) What are the requirements of IS : 456 2000 in production of high performance concrete ? **9**

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CC-563

M. Tech. EXAMINATION, May 2018

(Third Semester)

(Re-appear Only)

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 which carry equal marks. A student must 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. (a) How fibre reinforced concrete can be a better homogenous and isotropic construction material when compared with conventional and prestressed concrete ? **5**

(b) Natural fibres can be the most economical, however, addition of steel fibre into concrete is generally preferred, why ? **5**

(c) What do you understand with Inverted Slump Cone Test ? Why is it better applicable to fibre reinforced concrete ? **5**

2. (a) Show stress strain curve for steel fibre reinforced concrete under tension. How the moment of resistance of a steel fibre reinforced concrete should be greater than reinforced cement concrete beam ? **10**

(b) Discuss possible applications of fibre reinforced concrete with the mention of improvement in structural properties. **5**

Section B

3. (a) Discuss various classification of fly ash concrete including IS : 3812 2013 with their applications and field examples. **10**

(b) How does hydration process of fly ash concrete differ with ordinary Porland cement ? **5**

4. (a) Discuss various methods available for addition of fly ash in concrete with their advantages and disadvantages. **10**

(b) Discuss the affects of addition of flyash on mechanical properties of concrete. **5**

Section C

5. (a) Differentiate among the following : **8**

(i) Polymer cement concrete

(ii) Polymer impregnated concrete

(iii) Polymer modified concrete.

8. (a) How does light weight concrete differ from conventional concrete in terms of structural requirements. **5**

(b) Write short notes on the following : **10**

(i) Aerated concrete

(ii) Pumice concrete

(iii) No fine concrete.

8. (a) How does light weight concrete differ from conventional concrete in terms of structural requirements. **5**

(b) Write short notes on the following : **10**

(i) Aerated concrete

(ii) Pumice concrete

(iii) No fine concrete.