

8. (a) Discuss the mechanism for the corrosion of rebars. How rebars can be protected against corrosion in aggressive chloride environment ? 8
- (b) Discuss the mechanism for the corrosion of rebars due to sulphate salts. How rebars can be protected against corrosion in aggressive sulphate environment ? 7

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AA-562

M. Tech. EXAMINATION, May 2018

(First Semester)

(B. Scheme) (Re-appear Only)

CE(SE)

CES505

ADVANCED CONCRETE TECHNOLOGY

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. However, a student should attempt at least *one* question from each Section. Any data if missing can be suitably assumed. Use of scientific calculator is allowed. Use of Indian Standard is allowed.

Section A

1. Discuss the significance of the following tests and the test methods for cement as per requirements of Indian Standards : **3×5**
 - (i) Initial and final setting times
 - (ii) Soundness test
 - (iii) Loss of Ignition.
2. Discuss the procedure of concrete mix design as per Indian Standard. How does it differ with American Concrete Institute mix design method ? What assumptions restrict the applicability of mix design as determined from ACI method ? **15**

Section B

3. Discuss the significance of 28 days compressive strength of concrete in terms strength, durability and quality control with the mention of clauses from Indian Standards. **15**

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4. Define the following terms :

- (i) Basic creep and creep coefficient
- (ii) Drying and plastic shrinkage

Discuss the factors which effect creep and shrinkage of concrete. **15**

Section C

5. (a) Explain a method with sketches for under water concreting.
(b) What precautions are required for concreting during extreme cold and hot weather ? **15**
6. Discuss the requirements for producing pumable concrete and shotcrete. How can we ensure proper strength and workability in such cases ? **15**

Section D

7. Define the term coefficient of permeability. What is its significance with reference to durability ? Discuss the factors which effect the permeability of concrete. **15**

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P.T.O.