

M.E. DEGREE EXAMINATIONS: DECEMBER 2009

First Semester

STRUCTURAL ENGINEERING

SEE566: Advanced Concrete Technology

Time: Three Hours

Maximum Marks: 100

Answer All the Questions:-

PART A (10 x 2 = 20 Marks)

1. What are Bogue's compounds?
2. How do the shape and size of aggregates affect the workability?
3. What is the difference between an additive and admixture?
4. Method to be adopted for placing and compaction of the concrete in the place of congested reinforcement?
5. What are the advantages of polymers in cement concrete?
6. List the different type of attacks on concrete under aggressive conditions
7. What alternatives can be carried out for making concrete during extreme weather conditions?
8. What is meant by Vacuum concrete?
9. Where do we use Shortcrete?
10. What is difference between Ferro-cement and fiber reinforced concrete?

PART B (5 x 16 = 80 Marks)

11. (a) (i) Explain the process of hydration of cement, with chemical reactions. (8)
- (ii) Describe step by step procedure adopted as per IS code to find the setting time of concrete. (8)

(OR)

- (b) (i) Discuss the importance of Grading of aggregates. (8)
- (ii) Describe the sieve analysis procedure for fine aggregates to know the suitability for concrete. (8)

12. (a) (i) Explain the mechanisms of chemical admixtures on concrete at fresh and hardened concretes. (8)
- (ii) Write a note on effect of following chemicals on concrete properties. (8)
1. Air entraining agents
 2. Accelerators

(OR)

- (b) Explain in detail IS method of mix proportioning of concrete, with an example of the same.

13. (a) Explain in detail any four methods to measure the workability of concrete and give its advantages & disadvantages.

(OR)

- (b) (i) Explain in brief how will you determine the flexural strength of concrete as per BIS? (8)
- (ii) How will you determine the modulus of elasticity of concrete? (8)

14. (a) (i) Explain in brief acid attack and sulphate attack on concretes. (8)
- (ii) What are the problems encountered in cold weather and hot weather concreting? Mention its remedial measures to overcome the problems. (8)

(OR)

- (b) (i) Explain the mechanism of corrosion of steel in concrete and its remedial measures. (8)
- (ii) Describe in detail the durability of concrete in sea water. (8)

15. (a) (i) Explain in detail the method of ferro cement casting in details. (8)
- (ii) How light weight concrete is produced? Give its applications. (8)

(OR)

- (b) (i) What are the advantages and disadvantages of Ready mixed concrete. (8)
- (ii) How high performance concrete is produced? What are its applications? (8)
