

M.E. DEGREE EXAMINATIONS: JANUARY 2011

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 is meant by soundness of cement, what is the test conducted for it.
2. What is meant by alkali aggregate reaction?
3. What is the purpose of air entraining agents used in concrete?
4. What are the factors influencing the design of a concrete mix.
5. What are the durability tests conducted for concrete
6. What is the purpose of curing the concrete?
7. What are the special care to be taken in sea water concreting?
8. What is meant by heat resistant concrete?
9. What are the advantages and applications of fibre reinforced concrete?
10. Name 4 light weight aggregates used in light weight concrete.

PART B (5 x 16 = 80 Marks)

11. a) Explain any 3 tests conducted for cement **(OR)**
- b) (i) Briefly explain grading of aggregates (8)
(ii) Tests on aggregates (8)
12. a) (i) Explain briefly the action of corrosion inhibitors in concrete (8)
(ii) Explain briefly the application and advantages of using silica fume in concrete. (8)
- (OR)**
- b) Explain Road note 4 method of mix design in detail.
13. a) (i) Explain the procedure for workability tests for concrete (10)
(ii) What are the causes of segregation and bleeding in concrete (6)
- (OR)**
- b) (i) Write short notes on creep and shrinkage of concrete. (8)
(ii) What is meant by coefficient of variation and characteristic strength? (8)
14. a) (i) Explain briefly the reaction between aggregate and cement (8)
(ii) Write short notes on corrosion of reinforcement in concrete (8)
- (OR)**
- b) (i) Explain the mechanism of disintegration of concrete due to corrosion in reinforcement. (8)
(ii) Write short notes on reaction of chemicals in aggregates (8)
15. a) Write short notes on:
- (i) Gap graded concrete (4)
(ii) Polymer concrete (6)
(iii) Ferrocement (6)
- (OR)**
- b) Write short notes on:
- (i) Fibre reinforced concrete (8)
(ii) High performance concrete (8)