

# B.Tech Degree III Semester Examination November 2002

## CE 304 CONCRETE TECHNOLOGY (1999 Admissions onwards)

Time: 3 Hours

Max. Marks: 100

- I. (a) What are the chemical compounds that form portland cement ? Explain the function of each compound. (10)  
 (b) List the advantages of expansive cement. Give two applications where expansive cement is used. (5)  
 (c) What is masonry cement ? What are its properties ? (5)
- OR**
- II. (a) Explain with neat figures the method of determining the initial and final setting times of cement. (10)  
 (b) What is heat of hydration ? (5)  
 (c) What is sulphate resisting cement ? Give its applications. (5)
- III. (a) Explain flakiness and elongation index. How does it affect the properties of fresh concrete ? (6)  
 (b) Explain the method of determination of aggregate crushing value. (8)  
 (c) Can you use sea water for mixing concrete ? What are its effects on strength and durability ? (6)
- OR**
- IV. (a) What do you mean by bulking ? How does it affect the batching of concrete ? How can you overcome the effect of bulking ? (10)  
 (b) What are the requirement of water to be used for mixing concrete ? (5)  
 (c) Explain the terms  
     (i) Fineness modulus  
     (ii) Grading of aggregates. (5)
- V. (a) What are the different methods adopted for under water concreting ? Explain any one method in detail. (8)  
 (b) What are the damp-proofing and permeability reducing agents commonly used with cement? (6)  
 (c) Explain the term grouting. What are the essential properties required for grout ? What admixtures can be used to achieve this ? (6)
- OR**
- VI. Write short Notes on :  
     (i) Workability agents      (ii) Gas Forming agents  
     (iii) Colouring agents      (iv) Air detrainng agents. (4 x 5 = 20)
- VII. (a) What is workability ? What are the factors affecting workability ? (6)  
 (b) Explain with neat figures the equipments used for compaction of concrete. (8)  
 (c) What is curing ? Explain the different methods of curing. (6)
- OR**
- VIII. (a) Explain the method of determination of the modulus of elasticity of concrete using the compressometer. (10)  
 (b) Differentiate between segregation, bleeding and laitance. (5)  
 (c) Explain the split tensile strength test. (5)
- IX. (a) What do you mean by characteristic strength of concrete ? (5)  
 (b) Explain the different steps in the method recommended by Indian standards for mix design. (10)  
 (c) What are the advantages and disadvantages of ready-mixed concrete? (5)
- OR**
- X. Write short notes on :  
     (i) Super sulphated concrete.      (ii) No fines concrete.  
     (iii) Fibre-Reinforced concrete.      (iv) Lightweight concrete. (4 x 5 = 20)

