



**B.E DEGREE EXAMINATIONS: NOV 2015**

(Regulation 2009)

Seventh Semester

**CIVIL ENGINEERING**

CEE123: Concrete Technology

**Time: Three Hours**

**Maximum Marks: 100**

**Answer all the Questions:-**

**PART A (10 x 1 = 10 Marks)**

1. Bulking of sand is due to
  - a) Viscosity.
  - b) Air voids.
  - c) Surface moisture.
  - d) Wet weight.
2. Early gain in strength of cement concrete is due to
  - a) C<sub>3</sub>S
  - b) C<sub>2</sub>S
  - c) C<sub>3</sub>A
  - d) C<sub>4</sub>AF
3. The heat liberated during hydration of cement is about
  - a) 360 cal/g.
  - b) 240 cal/g.
  - c) 60 cal/g.
  - d) 120 cal/g.
4. A concrete using an air entrained cement
  - a) Has strength less than 10% to 15%
  - b) Has more resistance to weathering.
  - c) Is more plastic and workable.
  - d) Is free from segregation and bleeding.
5. Most suitable cement for concrete for under-sea applications is
  - a) Low heat cement.
  - b) High alumina cement.
  - c) Super sulphate cement.
  - d) Low alumina cement.
6. Concrete gains strength due to
  - a) Chemical reaction of cement with sand and coarse aggregate.
  - b) Evaporation of water from concrete.
  - c) Hydration of cement.
  - d) Alkali-aggregate reaction.
7. Good quality concrete should have fineness modulus of coarse aggregate in the range of
  - a) 5 to 6
  - b) 6 to 9
  - c) 3 to 4
  - d) 4 to 5

8. The mix for underwater concreting uses should have
- a) Very low slump.
  - b) Low slump.
  - c) High slump.
  - d) Medium slump.
9. Humidity causes
- a) Hardening of cement in a bag.
  - b) Setting of cement in a bag.
  - c) Strengthening of cement in a bag.
  - d) Retardation in cement.
10. The sand used in cement test should be in accordance with
- a) IS:1343-1980
  - b) IS:456-2000
  - c) IS:650-1991
  - d) IS:1365-1980

**PART B (10 x 2 = 20 Marks)**

- 11. What do you mean by bulking of fine aggregate?
- 12. Why is volume batching discouraged?
- 13. Distinguish between nominal and mix design.
- 14. When is mineral admixture preferred over chemical admixture?
- 15. Enumerate the factors which affect the strength of concrete.
- 16. Justify the statement, water cement ratio decreases when strength increases.
- 17. What is fire rating?
- 18. State the importance for study of permeability of concrete.
- 19. When do you use Fibre Reinforced Concrete?
- 20. How temperature rise is controlled in mass concrete?

**PART C (5 x 14 = 70 Marks)**

21. a) i) List the various types of cement indicating their uses for different applications. (7)
- ii) What are the various tests to be done on coarse aggregate and fine aggregate? (7)
- Describe the sieve analysis procedure for aggregate.
- (OR)**
- b) i) What is soundness of cement and how is it treated? (7)
- ii) Discuss the importance of quality of water used for concreting. (7)
22. a) i) Describe the step-by-step procedure of Indian Standard method of concrete mix design. (7)
- ii) Explain in detail the role played by silica fume in strength and durability of concrete. (7)

**(OR)**

- b) i) List the methods used for concrete mix proportioning indicating the drawbacks of the method. (7)
- ii) Mention any four corrosion inhibiting agents used in concrete. Discuss their functions. (7)
23. a) i) Discuss the factors which cause variation in quality of concrete. (7)
- ii) What are the essential properties of hardened concrete and how are they determined? (7)
- (OR)**
- b) i) What is curing? Discuss the various methods adopted for curing of concrete. (7)
- ii) Explain the various steps to be followed in quality control of concrete. (7)
24. a) i) Elaborate the thermal properties of concrete. (7)
- ii) List the importance of resistance to abrasion and cavitation of concrete. (7)
- (OR)**
- b) i) Explain the chemical action in concrete and discuss the methods of controlling sulphate attack. (7)
- ii) State the need for fire resistance in concrete. (7)
25. a) i) Examine the factors influencing the strength and density of light weight aggregate concrete. (7)
- ii) Critically review the properties of polymer impregnated concrete. (7)
- (OR)**
- b) i) Describe the application of Fibre Reinforced Concrete. (7)
- ii) What is ready mixed concrete? State its applications. (7)

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