

T 8080

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2006.

Second Semester

Civil Engineering

CE 1152 — CONSTRUCTION MATERIALS

(Regulation 2004)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

[Note : Use of IS mix design tables is permitted]

PART A — (10 × 2 = 20 marks)

1. Give the different classifications of stones, giving an example of each.
2. List the different varieties of bricks.
3. Mention the different kinds of lime available for use in construction works.
4. What is meant by hydration of cement? What is its importance?
5. State the advantages of concrete as a construction material.
6. What is the effect of water-cement ratio on the strength of concrete?
7. What are the characteristics of good timber?
8. Enumerate the constituents of an oil paint.
9. State the general properties of glass.
10. What are the essential properties of refractories?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the various tests to be conducted on stones to determine their suitability. (10)
- (ii) What are the various agencies which tend to reduce the life of a building stone? (6)

Or

- (b) (i) What are the operations involved in the making of bricks? Explain them. (10)
- (ii) What are the characteristics of first class bricks? (6)
12. (a) (i) Describe the operations involved in the manufacture of lime. (12)
- (ii) What are the precautions to be taken in the use of mortars? (4)

Or

- (b) (i) What are the various ingredients required for manufacturing cement? State their functions. (8)
- (ii) How is the impact resistance of aggregates determined in the laboratory? Give the IS specifications for the same. (8)
13. (a) Define workability of concrete. Briefly describe the various methods of measuring workability bringing out their suitability. (16)

Or

- (b) Design a concrete mix by IS method for the following requirements : Concrete grade-M40 ; Quality control - Very good ; Exposure - Moderate ; Workability - 0.75 compacting factor ; Cement - OPC 53 grade, Specific gravity 3.15 ; Sand - Grading zone I, Specific gravity 2.66 ; Coarse aggregate - 20 mm angular, Specific gravity 2.68. Determine the quantity of materials required for 1 m³ of concrete and also the mix proportions by weight. (16)
14. (a) With the help of simple sketches describe the various varieties of industrial timber mentioning their properties, advantages, disadvantages and applications. (16)

Or

- (b) (i) What are the characteristics of an ideal paint? Briefly highlight the usual defects found in painting works. (8)
- (ii) What are the ingredients of a distemper? What steps are to be followed while applying distemper on a surface? (8)

15. (a) What are the stages involved in the manufacture of glass? Explain them. (16)

Or

- (b) (i) How are refractory materials classified? Give a brief description of each. (8)
- (ii) What is terra cotta? How is it manufactured? (8)
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