

B.E. DEGREE EXAMINATIONS: NOV/DEC 2010

Second Semester

CIVIL ENGINEERING

U07CE202: Construction Materials

Time: Three Hours

Maximum Marks: 100

Answer All Questions

PART A (10 x 1 = 10 Marks)

1. The stone that is most suitable for marine works is
A) Gneiss B) Sandstone C) Granite D) Limestone
2. Which one of the following procedure is applied to determine the hardness of bricks?
A) Immersing the brick under water for 16 hours and determining the quantity of water absorbed by the brick.
B) Immersing the brick under water for 24 hours and determining its expansion using Le Chatelier apparatus.
C) Taking two bricks, hitting one against the other and observing whether they break or not.
D) Scratching the brick by finger nail and noting whether any impression is made or not.
3. The initial setting time of ordinary Portland cement is
A) 30 seconds B) 60 minutes C) 30 minutes D) 10 hours
4. For lime mortar, the ratio of lime to sand by volume is usually kept at
A) 1:2 B) 1:3 C) 1:4 D) 1:5
5. Workability of fresh concrete may be determined by
A) Slump test B) Flow test C) Compaction factor test D) Any of the above tests.
6. Consider the following strength of concrete:
A) Cube strength B) Cylinder strength
C) Cylinder – split tensile strength D) Modulus of rupture.
7. The correct sequence in increasing order of these strength is
A) 3,4,2,1 B) 3,4,1,2 C) 4,3,2,1 D) 4,3,1,2
8. The strength of timber is maximum in the direction
A) Perpendicular to the grains B) parallel to the grains
C) 45 ° to the grains D) 30 ° to the grains
9. Structural steel members are mostly made of
A) High tensile steel B) Mild steel C) Cast iron D) Galvanized iron

10. Geosynthetics is used for

- A) Reinforcing slabs B) Reinforcing columns C) Reinforcing beams D) Reinforcing soils

11. Fly ash is used in

- A) Making bricks B) concrete as partial replacement for cement
C) the manufacture of a type of cement D) All of the above

PART B (10 x 2 = 20 Marks)

11. How are stones classified?

12. What is meant by efflorescence?

13. What are the ingredients of cement?

14. What is meant by hydration of cement?

15. What is the relationship between tensile and compressive strength of concrete?

16. What is high performance concrete?

17. Give the uses of thermocol.

18. What are distempers?

19. Name the sealants that are used in joints.

20. What is fibre glass and where is it used?

PART C (5 x 14 = 70 Marks)

21. (a) (i) Name five important building stones and give their uses (10)

(ii) What are the characteristics of good building stones? (4)

(OR)

(b) (i) How is compressive strength of bricks determined? (7)

(ii) Give the method of manufacture and applications of light weight concrete blocks. (7)

22. (a) How are initial setting time and soundness of cement determined?

(OR)

(b) How is grading curve of sand obtained? What is the significance of fineness modulus of sand? (10 + 4)

23. (a) (i) Explain the method of determination of modulus of rupture value of concrete. (7)

(ii) How is high strength concrete obtained? Where is it used? (7)

(OR)

(b) (i) What are the factors which influence the strength of concrete? (4)

(ii) Give the step – by – step procedure for proportioning of concrete mix by I.S.method. (10)

24. (a) Give the properties and uses of the following timber

- (i) Teak (ii) Deodar (iii) Sal (iv) Rosewood

(OR)

(b) Sketch the cross sections of steel and aluminium members available in the market for construction purpose.

25. (a) Give four types of composite materials and their uses.

(OR)

(b) (i) What are ceramics? Where are they used? (7)

(ii) What are geosynthetics? Give their applications in Civil Engineering. (7)
