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Question Paper Code : 70057

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2022.

Third Semester

Civil Engineering

CE 3302 – CONSTRUCTION MATERIALS AND TECHNOLOGY

(Regulations 2021)

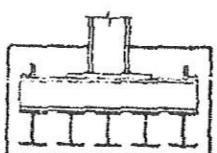
Time : Three hours

Maximum : 100 marks

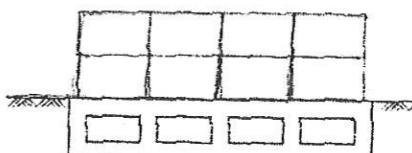
Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Why dressing of stone is required?
2. What are the constituents of good brick earth?
3. State the principal causes of decay of timber.
4. Name the ores required for making steel.
5. Name the type of foundation shown in figure 1.



(a)



(b)

Figure 1

6. State any two characteristics of a good formwork.
7. List the criteria used for selection of equipment.
8. Enumerate the various excavation equipments.
9. State the objectives of planning for construction.
10. How construction activities are scheduled?

PART B — (5 × 13 = 65 marks)

11. (a) Briefly discuss the following tests of stones :

- (i) durability test
- (ii) crushing test
- (iii) shear strength test.

Or

(b) Describe briefly the tests to which bricks may be put before using them for engineering purposes.

12. (a) (i) Describe briefly the manufacture of steel by open hearth process. (9)

(ii) Draw the flow diagram for extraction of aluminum and state its uses. (4)

Or

(b) (i) Explain the following in detail :

- (1) Classification of ceramic materials
- (2) Mechanical properties of ceramics. (9)

(ii) Describe briefly the applications of glass in construction industry. (4)

13. (a) (i) Explain the bonds for the following construction practice with neat sketch :

- (1) For Walls which are thicker than four bricks thick. (4)
- (2) To strengthen the corner of the walls. (3)
- (3) To improve the appearance of walls. (3)

(ii) What are the points to be observed in supervising brick and stone masonry Construction? (3)

Or

(b) (i) Describe briefly the methods of damp proofing that you recommend under the following circumstances (9)

- (1) Building structure lying on a valley site
- (2) Foundations suited on poorly drained soils.
- (3) Steel pitched or inclined roofs
- (4) Parapets and copings.

(ii) Give details of the following formwork with neat sketches :

- (1) stepped column footing (4)
- (2) formwork for stairs.

14. (a) Name different compaction equipments. Describe the suitability of each equipment in detail.

Or

(b) Enumerate the different types of hoisting equipment. Briefly describe different types of cranes used in construction industry.

15. (a) Describe in detail about PERT network and CPM with a case study.

Or

(b) Draw the network or arrow diagram and illustrate the following: event, activity, dummy, time estimate, start and finish, float, critical path, range, variance and standard deviation.

PART C — (1 × 15 = 15 marks)

16. (a) List the types of shoring and describe the use of raking shore under the following cases by neat sketches :

- (i) To support unsafe walls for a building with height of 12 metres.
- (ii) To support a wall of multi-storeyed structure on road side leaving roadside margins.

Or

(b) Differentiate between brick layer's scaffolding and mason's scaffolding. Illustrate the significance of the following during construction :

- (i) Ladder scaffolding
- (ii) Needle scaffolding
- (iii) Wooden gantries.