Reg. No.															

Question Paper Code	13286

B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2024

Third Semester

Civil Engineering

20CEPC304 - CONSTRUCTION MATERIALS, EQUIPMENT AND PRACTICES

Regulations - 2020

(Use of design charts in IS10262:2009 is permitted)

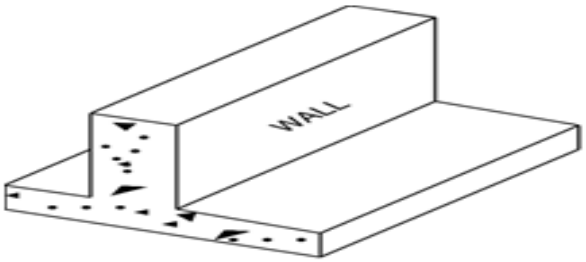
Duration: 3 Hours Max. Marks: 100

PART - A (MCQ) (20 × 1 = 20 Marks)

Answer ALL Questions

		Marks	K – Level	CO
1.	The size of brick is ---------- cm (a) 19x8x8 (b) 19x9x9 (c) 20x5x5 (d) 19x10x10	1	K1	CO1
2.	The process of taking out of stones from natural rock is known as (a) Quarrying (b) Dressing (c) Weathering (d) Cladding	1	K1	CO1
3.	In a mortar, the binding material is (a) Cement (b) sand (c) surkhi (d) cinder	1	K2	CO1
4.	Initial setting time of cement for asbestos cement products should be not less than (a) 30 minutes (b) 50 minutes (c) 75 minutes (d) 90 minutes	1	K1	CO2
5.	Which is/are the important raw material(s) required in cement industry? (a) Gypsum and Clay (b) Clay (c) Limestone and Clay (d) Limestone	1	K2	CO2
6.	The size of fine aggregates does not exceed (a) 2.75 mm (b) 3.00 mm (c) 3.75 mm (d) 4.75 mm	1	K1	CO2
7.	Which of the following defines concrete? (a) Homogenous materials mixed together (b) Mixture of cement, water and aggregates (c) Both (a) and (b) (d) Neither (a) nor (b)	1	K1	CO3
8.	Curing (a) reduces the shrinkage of concrete (b) preserves the properties of concrete (c) prevents the loss of water by evaporation (d) all of the above	1	K2	CO3
9.	Which process comes after batching in manufacture process? (a) Transportation (b) Placing (c) Mixing (d) Compacting	1	K1	CO3
10.	An example of non-destructive testing. (a) Ultrasonic test (b) Compression test (c) Both (a) and (b) (d) Neither (a) nor (b)	1	K1	CO4
11.	Separation of coarse aggregates from mortar during transportation, is known (a) Bleeding (b) creeping (c) segregation (d) shrinkage	1	K1	CO4
12.	Water cement ratio is (a) volume of water to that of cement (b) weight of water to that of cement (c) weight of concrete to that of water (d) both (a) and (b) of the above	1	K2	CO4
13.	The quality of timber does not depend upon: (a) Maturity of tree (b) Time of felling (c) Type of tree (d) Size of tree	1	K2	CO5
14.	Percentage of carbon content in steel varies from _____ (a) 0.25-1.50 (b) 2.00-4.00 (c) 3.00-4.50 (d) 2.50-3.50	1	K1	CO5
15.	Steel is mainly an alloy of (a) Iron and Carbon (b) Sulphur and Zinc (c) Zinc and tin (d) Phosphorous and Tin	1	K1	CO5
16.	Aluminium is commercially produced from: (a) Aluminium sulphate (b) Alum (c) Cryolite (d) Bauxite	1	K2	CO5

17. The figure below represents: *1 K2 CO6*



(a) Isolated footing (b) Wall footing (c) Strap footing (d) Mat foundation

18. Which of the below should be avoided in brick masonry? *1 K2 CO6*
(a) Horizontal joints (b) Queen closer (c) Brick bat (d) Vertical joints

19. Terrazzo flooring comprises of: *1 K1 CO6*
(a) Chips, powder, concrete (b) Chips, concrete
(c) Chips, cement (d) Chips, powder, cement

20. DPC stands for: *1 K1 CO6*
(a) Damp Proof Concrete (b) Damp Proof Cement
(c) Damp Proof Course (d) Damp Proof Membrane

PART - B (10 × 2 = 20 Marks)

Answer ALL Questions

21. What is meant by dressing of stones? *2 K1 CO1*
22. Compare fat lime and hydraulic lime. *2 K2 CO1*
23. Define Elongation index. *2 K1 CO2*
24. What is meant by hydration of cement? What is its importance? *2 K1 CO2*
25. List the methods of mix proportioning of concrete. *2 K1 CO3*
26. Write a brief note on grade of concrete. What is the lowest grade of concrete allowed for structural works in concrete? *2 K2 CO3*
27. Compare between HPC and HSC. *2 K2 CO4*
28. List the factors influencing the choice of mix design. *2 K1 CO4*
29. Outline the seasoning in timber. *2 K2 CO5*
30. Compare centering and shuttering. *2 K2 CO6*

PART - C (6 × 10 = 60 Marks)

Answer ALL Questions

31. a) Explain briefly on the defects and preservation of stones. *10 K2 CO1*

OR

b) Describe with a flow chart showing the steps involved in the preparation of bricks. *10 K2 CO1*

32. a) Summarize the procedure of manufacturing cement by wet process. *10 K2 CO2*

OR

b) Discuss the following *10 K2 CO2*
(i) Water absorption tests on aggregate.
(ii) Flakiness Index and Elongation Index.

33. a) Summarize on the tests on fresh concrete. *10 K2 CO3*

OR

b) Discuss the following *10 K2 CO3*
(i) High performance concrete.
(ii) High strength Concrete.

34. a) Identify the objectives of mix design and explain the considerations for concrete mix design. *10 K2 CO4*

OR

	b)	Solve the concrete mix design and arrive at the mix proportion for M20 concrete as per BIS method.	*10*	*K3*	*CO4*
35.	a)	Explain the Bessemer process of manufacture of steel.	*10*	*K2*	*CO5*
		OR			
	b)	What are composite materials? Discuss its role and uses in construction industry.	*10*	*K2*	*CO5*
36.	a)	Summarize the various types of shoring in construction.	*10*	*K2*	*CO6*
		OR			
	b)	What is Scaffolding? Mention its various components. Name the different types scaffolding and explain any two with neat sketch.	*10*	*K2*	*CO6*