Reg.No.:												

VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]
Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 170003

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2025
Third Semester
Civil Engineering
U23CE303 – CONSTRUCTION MATERIALS AND TECHNOLOGY
(Regulation 2023)

Time: Three Hours | Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	Classify stones.	2	K1	CO1
2.	State the methods of field testing of bricks.	2	K1	CO1
3.	Enumerate the various market forms of timber.	2	K2	CO2
4.	Differentiate between Laminate and Veneer.	2	K2	CO2
5.	State common field tests for conducting SBC.	2	K1	CO3
6.	Compare Shoring and Scaffolding.	2	K2	CO3
7.	State the function of a trencher.	2	K2	CO4
8.	List the types of concrete batching plants.	2	K1	CO4
9.	Recall and recite the stages of Construction planning.	2	K1	CO5
10.	Comment on optimistic and pessimistic time.	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.		Questions	Marks	KL	CO
11.	a)	Describe the step-by-step process used to manufacture conventional bricks. Draw a neat sketch to support your explanation.	13	K2	CO1
		(OR)			
	b)	Organize the different types of lime used in construction and how their properties affect the performance of lime mortar.	13	K2	CO1

12.	a)	Summarize the various applications of geo synthetic in civil engineering construction works. And also explain the properties of geotextiles.	13	K2	CO2
		(OR)			
	b)	Narrate the physical and mechanical properties of (i) Aluminium and (ii) steel.	13	K2	CO2
13.	a)	Identify the different types of building foundations and explain where each type is used.	13	K3	CO3
		(OR)			
	b)	Catalogue the methods of providing DPC. What are the requirements of an ideal material for damp proofing?	13	K3	CO3
14.	a)	Explain the types of earthwork equipment. Also list the information needed to select the proper equipment.	13	K3	CO4
		(OR)			
	b)	Categorize and explain the commonly used dewatering methods in construction sites.	13	K3	CO4
15.	a)	Compare the different types of scheduling and explain in detail.	13	K2	CO5
		(OR)			
	b)	Summarize the steps involved in construction planning with the help of a practical example.	13	K2	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.		Questions	Marks	KL	CO
16.	a)	A construction project consists of 7 activities. The Time estimates (in weeks) of different activities are given below;	15	K2	CO5

Activity	1-2	1-3	1-4	2-5	3-5	4-6	5-6
Optimistic Time	1	1	2	1	2	2	3
Most probable Time	1	4	2	1	5	5	6
Pessimistic Time	7	7	8	1	14	8	15

i. Draw Project Network. (4)
ii. Arrive the Critical path. (2)
iii. Calculate the variances & standard deviation of the project length. (5)
iv. Assess the probability of completing the project 3 weeks earlier than the expected time. (4)

Take:

Normal Deviation	Probability
-0.9	18.4
-1.0	15.9
-1.1	13.6

(OR)

b) The following table gives the data on Normal time and Normal cost, further the crash time and crash cost for a project. The indirect cost of the project is Rs.100/Day. 15 K2 CO5

i. Draw network and Identify Critical Path (4)

ii. Normal Project Duration and associated cost (2)

iii. Find Total float for each activity. (4)

iv. Crash the relevant activities to determine the optimal project time time and cost. (5)

Table

Activity	Normal Time(Days)	Normal Cost (Rs)	Crash Time (Days)	Crash Cost (Rs)
1-2	6	600	4	750
2-3	5	400	4	450
2-5	6	1200	3	1650
2-4	7	1000	4	1360
3-5	10	500	8	550
5-6	5	800	4	910
4-6	4	1500	3	1660