



R22 Regulation

Subject code:4E4AC

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

TKRCET
Innovation in Education

B.Tech IV Semester Supplementary Examinations, December 2025

CONCRETE TECHNOLOGY

(CE)

Maximum Marks: 60

Date:20.12.2025

Duration: 3 hours

- Note:
- 1.This question paper contains two parts A and B.
 2. Part A is compulsory which carries 10 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10X1M=10 Marks)		Marks	CO	Bloom Tx
1.a)	Give the function of gypsum in the manufacture of cement.	1M	CO1	BT1
b)	List the 2 methods of manufacturing cement.	1M	CO1	BT1
c)	Classify aggregates based on shape and size.	1M	CO2	BT1
d)	What do you understand by grading of aggregate?	1M	CO2	BT1
e)	Write about the setting time of concrete.	1M	CO3	BT1
f)	Can sea water be used for mixing concrete?	1M	CO3	BT1
g)	Define gel space ratio.	1M	CO4	BT1
h)	State the necessity of curing for cement concrete.	1M	CO4	BT2
i)	List the types of polymer concrete.	1M	CO5	BT1
j)	Give any two advantages of light weight concrete.	1M	CO5	BT1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	Bloom Tx
2	What are chemical admixtures? Explain any four of them.	10M	CO1	BT3
OR				
3	Explain in detail any three laboratory tests conducted on cement as per IS code.	10M	CO1	BT3
4	Discuss the characteristics of good aggregates and briefly describe the specific gravity test and crushing test on aggregate.	10M	CO2	BT4
OR				
5	Explain briefly about the following: a) Alkali aggregate reaction and precautions necessary to minimize it. b) Impact strength of aggregate.	7M 3M	CO2	BT3
6	Discuss the steps in the manufacture of concrete and add a note on factors influencing the workability.	10M	CO3	BT3
OR				

7	Discuss about bleeding and segregation of concrete. What are the effects of bleeding and segregation in concrete? State the control measures to be taken.	10M	CO3	BT4
8	a) What are the different tests performed on hardened concrete? b) Explain the principle and methodology non-destructive testing of concrete using Rebound Hammer Method.	3M 7M	CO4	BT3
OR				
9	Give a detailed account of the creep of concrete and the factors affecting the creep of concrete.	10M	CO4	BT3
10	Design a concrete mix for RCC construction. The specified characteristic strength is 25 MPa at 28 days. Standard deviation can be taken as 4 MPa. The specific gravity of FA and CA are 2.66 and 2.78 respectively. The dry rodded bulk density of CA is 1600 kg/m ³ and fineness modulus of FA is 2.80. Ordinary Portland cement (Type I) to be used. A slump of 100 mm is necessary. CA is found to be absorptive to the extent of 2% and free surface moisture in sand is found to be 4 per cent. Assume any other essential data.	10M	CO5	BT5
OR				
11	Write short notes on: a) Advantages and applications of polymer concrete. b) Manufacturing process of high-performance concrete.	5M 5M	CO5	BT3