

**BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLOGY & SCIENCE  
(AUTONOMOUS)**

**II - B. Tech II-Semester Supplementary Examinations (BR23), Aug - 2025**

**CONCRETE TECHNOLOGY (CE)**

Time: 3 hours

Max. Marks: 70

*Question Paper consists of Part-A and Part-B  
Answer ALL the question in Part-A and Part-B*

**PART-A (10X2 = 20M)**

	Marks	CO	BL
1. a) What are the Different grades of cements?	(2M)	CO1	BL1
b) What are the different physical tests of cement?	(2M)	CO1	BL1
c) Define workability of concrete.	(2M)	CO2	BL1
d) What is placing of concrete?	(2M)	CO2	BL1
e) Write about different NDT methods.	(2M)	CO3	BL1
f) What is Abram's law?	(2M)	CO3	BL1
g) Explain about Modulus of elasticity?	(2M)	CO4	BL2
h) What is Poisson's ratio in concrete?	(2M)	CO4	BL1
i) What are the factors in the choice of mix proportions?	(2M)	CO5	BL1
j) Describe about Quality Control of concrete,	(2M)	CO5	BL2

**PART-B (5X10 = 50M)**

2a. Explain the properties of fine and coarse aggregate.	5(M)	CO1	BL1
2b. Explain the benefits of admixtures.	5(M)	CO1	BL2
(OR)			
3a. What is the significance of initial setting time of cement? Describe procedure to test initial setting time of cement.	5(M)	CO1	BL1
3b. What is segregation and bleeding? How they affect concrete	5(M)	CO1	BL2
4a. Explain with neat diagram non-destructive testing of concrete using Rebound Hammer Method.	10(M)	CO2	BL2
(OR)			
5a. Explain the significance of curing? discuss various curing methods applied to concrete.	5(M)	CO2	BL2
5b. List out various steps involved in manufacturing of concrete.	5(M)	CO2	BL1
6a. Write short notes on i) Water / Cement ratio ii) Gel space ratio and iii) splitting test	10(M)	CO3	BL2
(OR)			
7a. Explain the various factors affecting strength of hardened concrete	5(M)	CO3	BL2
7b. What are the IS Code provisions for NDT?	5(M)	CO3	BL2
8a. Define Shrinkage? Explain various types of shrinkage.	5(M)	CO4	BL2

- 8b. What is creep of concrete and brief on factors influencing the creep. 5(M) CO4 BL2
- (OR)
- 9a. Explain relation between Modulus of elasticity and strength and factors effecting elasticity. 10(M) CO4 BL1
- 10a. Explain the factors affecting the mix design of concrete and write the steps involved in the mix design. 10(M) CO5 BL6
- (OR)
- 11a. Design M40 grade concrete according to IS 10262-2009 using BIS method for the following data
- i). Slump 75 mm
  - ii). Quality control: good
  - iii). Exposure condition : [SEVERE]
  - iv). Maximum cement content: 450 kg/m<sup>3</sup>
  - v). Specific gravity of cement : 3.12
  - vi). Specific gravity of fine aggregate : 2.6
  - vii). Specific gravity of coarse aggregate : 2.72
  - viii). Sand Zone III as per IS 383-2016 Assume any missing data suitably
- 10(M) CO5 BL4

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