



Sixth Semester B.E./B.Tech. Degree Examination, June/July 2025 Concrete Technology

Time: 3 hrs.

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. Use IS : 10262 – 2019 and IS : 456 – 2000 are permitted.

Module-1

- 1 a. List out Bogue's compounds C_2S , C_3B , C_3A and C_4AF and explain their contribution towards gaining of strength of cement. (10 Marks)
- b. Explain the process of hydration of cement with relevant graphs. (10 Marks)

OR

- 2 a. Discuss about the field test conducted on cement. (10 Marks)
- b. Explain the LOS Angles Abrasion test on coarse aggregates comment on results. (10 Marks)

Module-2

- 3 a. Explain manufacturing process of concrete. (10 Marks)
- b. Explain the factors affecting workability of fresh concrete in detail. (10 Marks)

OR

- 4 a. Explain different methods of using of concrete. (10 Marks)
- b. Explain measurement of workability by slump test and discuss on results with neat sketches. (10 Marks)

Module-3

- 5 a. Define Admixture, and classify them. (10 Marks)
- b. Explain function of pozzdamic admixture and write pozzdamic reaction. (10 Marks)

OR

- 6 Design the mix proportioning for a concrete of M40 grade using fly ash, other data are given below :

a. Type of cement- OPC 43 grade conforming to IS 269	i. Chemical admixture – super plasticizer
b. Type of mineral admixture–fly ash conforming to IS 3812 (part 3)	j. Sp. Gravity of cement – 3.15
c. Maximum nominal size of – 20 mm	k. Sp. Gravity of fly ash – 2.2
d. Minimum cement content and maximum water cement ratio to-serve (for RC)be adopted and / Exposure condition	l. Sp. Gravity of coarse aggregate- 2.74
e. Workability – 120mm (slump)	m. Sp. Gravity of fine aggregate- 2.65
f. Method of concreting–pumping	n. Sp. Gravity of chemical admixture-1.145
g. Type of aggregate–crushed angular aggregate	o. Water absorption : i) Coarse Aggregate – 0.5% ii) Fine Aggregate – 1.0%
h. Maximum cement context – As per IS 456	p. Free surface moisture : i) Coarse Aggregate – 1.5% ii) Fine Aggregate – 4%
q. Grading of coarse aggregate is confirming to table 2 of IS 383 and grading of fine aggregate is falling in zone – 2 of table – 9 of IS 383.	

(20 Marks)

Module-4

- 7 a. Define w/c ratio, gel space ratio, maturity of concrete. (10 Marks)
b. Define compressive strength of concrete and explain the test for determination conforming to IS 516. (10 Marks)

OR

- 8 a. Explain split tensile test on hardened concrete. (10 Marks)
b. Explain Flexural strength test on Hardened concrete. (10 Marks)

Module-5

- 9 a. What is durability of concrete? What are the factors affecting durability of concrete? (10 Marks)
b. Define shrinkage and creep of concrete. Discuss about the factors affecting shrinkage of concrete. (10 Marks)

OR

- 10 a. Explain sulphate attack and chloride attack on hardened concrete and remedies for them. (10 Marks)
b. Explain attack on concrete by i) Carbonation ii) Freezing and thawing and remedies for them. (10 Marks)
