Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 80081

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2019.

Fourth Semester

Civil Engineering

CE 8404 — CONCRETE TECHNOLOGY

(Regulation 2017)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. List out any four types of cement.
2. Write about Heat of Hydration.
3. Differentiate between Plasticizers and Super Plasticizers.
4. Write the function of Accelerators.
5. Define the terms: Standard deviation and Coefficient of Variation.
6. Differentiate between Nominal Mix and Design Mix.
7. State the importance of controlling workability.
8. Draw Stress-Strain curve for Concrete.
9. State the advantages of Ready Mixed concrete.
10. List the types of Polymer Concrete.

PART B — (5 × 13 = 65 marks)

11. (a) Explain in detail any three laboratory tests conducted on cement as per IS code.

Or

(b) (i) Detail about the properties of aggregate. (6.5)

(ii) Discuss about the importance of quality of water used for concreting. (6.5)

12. (a) Brief about the functions and requirements of water proofing admixtures.

Or

(b) Discuss about the performance of GGBS in concrete.

13. (a) Explain the design procedure of BIS method concrete mix design.

Or

(b) Describe about the requirements for Concrete mix design.

14. (a) List out the tests to be conducted on Fresh Concrete and explain any three.

Or

(b) Describe the properties of Hardened concrete and explain any two tests to be conducted on it.

15. (a) Explain about :

(i) Self compacting concrete. (6.5)

(ii) Shotcrete. (6.5)

Or

(b) Explain about :

(i) Light Weight Concrete. (6.5)

(ii) High Strength Concrete. (6.5)

PART C — (1 × 15 = 15 marks)

16. (a) Using IS recommended guidelines; design a M25 concrete mix for a reinforced concrete structure to be subjected to mild exposure conditions during its service life for the following requirements.

Design stipulations:

Degree of workability medium (75 – 100 mm slump of 0.9 CF)

Degree of quality control weigh batching, occasional supervision, no past experience with this grade, S = 5.5 MPa

Characteristics of materials:

Cement		
Type and grade	Ordinary Portland Cement	
Specific gravity	3.15	
Bulk density	1450 kg/m^3	
Aggregates	Fine Aggregate	Coarse Aggregate
Type	River sand (zone II)	Crushed granite
Maximum nominal size	20 mm	–
Specific gravity	2.60	2.65
Bulk density (kg/m^3)	1700	1800
Fineness modulus	2.3	6.0
Free surface moisture (%)	2.0	1.0

Or

(b) Discuss about the placing and curing of concrete.

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