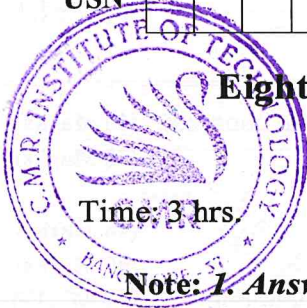


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10CV81



Eighth Semester B.E. Degree Examination, Jan./Feb. 2021
Advanced Concrete Technology

Time: 3 hrs.

Max. Marks:100

- Note:** 1. Answer FIVE full questions, selecting atleast TWO questions from each part.
 2. Use IS 10262 – 2009 is allowed.
 3. Missing data, if any, may be suitably assumed.

PART – A

- 1 a. List Bogue's compounds and explain the equations suggested by Bogue for calculating the percentage of major compounds. (08 Marks)
 b. Explain the process of hydration of cement. (08 Marks)
 c. Explain creep in concrete. (04 Marks)
- 2 a. Explain the effect of super plasticizers on fresh and hardened concrete. (08 Marks)
 b. Enumerate the advantages of air entrainment in concrete. (06 Marks)
 c. Explain the performance of GGBS in concrete. (06 Marks)
- 3 Design a concrete mix M45 grad with following data along with fly ash
 i) Type of cement = OPC 43 grade
 ii) SP gravity = 3.15
 iii) Maximum size of aggregate = 20mm
 iv) Exposure condition = severe (RCC)
 v) Workability = 100mm slump
 vi) Minimum cement content = 320 kg m³
 vii) Maximum w/c ratio = 0.45
 viii) Method of placing concrete = pumping
 ix) Degree of super vision = good
 x) Type of aggregate = crushed angular
 xi) Sp. gravity's of fine and coarse aggregate 2.7
 xii) Water absorption CA = 0.5%, FA – 1.0%
 xiii) C.A. – confirming to table – 2 of IS : 383
 F.A. – confirming to zone – I of IS 383 Sp. Grade of fly ash 2.2. (20 Marks)
- 4 a. Write a note on thermal properties of concrete. (08 Marks)
 b. Explain the effect of permeability on the properties of hardened concrete. (08 Marks)
 c. Explain corrosion in R.C. structures. (04 Marks)

PART – B

- 5 a. Explain with flow diagram the working of ready mix concrete. (08 Marks)
 b. Explain a concrete pumping pump with neat sketch. (08 Marks)
 c. Explain the properties of high volume fly ash concrete. (04 Marks)
- 6 a. What is self compacting concrete? Explain the tests conducted on self compacting concrete. (10 Marks)
 b. Explain the properties of various fibers used in concrete and their effect on concrete. (10 Marks)

- 7 a. Explain the critical parameters involved in producing high performance concrete. (10 Marks)
b. Explain properties and uses of light weight concrete. (10 Marks)
- 8 a. Explain the factors affecting strength of hardened concrete. (08 Marks)
b. Explain the tests conducted on concrete to determine tensile strength. (08 Marks)
c. Explain pulse velocity test to determine the strength of the hardened concrete. (04 Marks)

