

CBCS SCHEME

18CV44

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Fourth Semester B.E. Degree Examination, Jan./Feb. 2023 Concrete Technology

Max. Marks: 100

- Note : 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. Use of IS 10262 – 2019 is permitted.
3. Assume any missing data suitably.

Module-1

- 1 a. List the Bogue's compounds present in cement. Mention their importance. (08 Marks)
b. Explain the effect of size, shape and texture of aggregates on concrete. (08 Marks)
c. When do you need the following admixtures? : (04 Marks)
i) Accelerators ii) Retarders.

OR

- 2 a. Give a brief note on : i) Quick setting cement ii) Sulphate resisting cement. (08 Marks)
b. What are Mineral Admixtures? Explain the action of flyash on fresh and hardened concrete. (08 Marks)
c. Mention the permissible limits of impurities for the following used for plain concreting :
i) Organic impurity ii) Inorganic impurity iii) Sulphates iv) Chlorides. (04 Marks)

Module-2

- 3 a. List and explain the factors affecting the workability of concrete. (08 Marks)
b. Why curing is required? Explain water curing and curing by application of heat. (08 Marks)
c. Enlist the methods used to transport the concrete. (04 Marks)

OR

- 4 a. With a neat sketch, explain the procedure of underwater concreting by Tremie method. (08 Marks)
b. Discuss the methods of temperature control in mass concreting. (08 Marks)
c. State the good practices during batching of concrete. (04 Marks)

Module-3

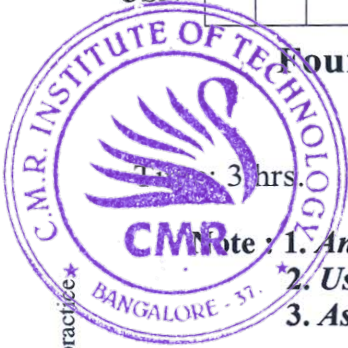
- 5 a. Explain the factors affecting the creep in concrete. (08 Marks)
b. Discuss on USPV method of testing on concrete. Mention the concrete quality grading as per IS code in USPV method. (08 Marks)
c. Define Autogeneous and Carbonation shrinkage in concrete. (04 Marks)

OR

- 6 a. Discuss on the chloride induced corrosion of reinforcement in concrete. (08 Marks)
b. Explain the 'Pull out' test to analyse the strength of cast in situ concrete. (08 Marks)
c. Calculate the maturity of concrete block which is kept for curing for 10 days and the ambient temperature is kept constant at 10°C. (04 Marks)

Module-4

- 7 a. Explain stepwise how mix proportioning is achieved as per IS 10262 - 2019. (12 Marks)
b. List the different tests to be carried on the ingredients of concrete before mix proportioning. (08 Marks)



OR

- 8 Arrive at the mix proportion of M40 grade concrete, with the part replacement of cement by ggbs. Use the following data :
- Grade of concrete : M40 grade ; Type of cement : OPC 43 grade ;
 Exposure condition : Severe (RCC) ; Workability : 100mm slump ;
 Method of placing : Pumping ; Quality control : Good ;
 Chemical admixture : SP (normal) ; Specific gravity of GGBS : 3.0 ;
 Specific gravity of cement : 3.15 ; Specific gravity of super plasticisers : 1.145 ;
 Percentage of GGBS : 30% ;
 Coarse aggregate : Crushed angular with 20mm graded size.

Fine aggregate conforming to Zone II is used.

Aggregate	Specific gravity	Water absorption (%)	Moisture content (%)
Coarse	2.74	0.5%	Nil
Fine	2.65	1.0%	Nil

Maximum permissible W/C = 0.45 ; Minimum cement content = 320 kg/m³. (20 Marks)

Module-5

- 9 a. What is Self Compacting Concrete? Mention the characteristics and tests performed on them. (08 Marks)
 b. Discuss on the aspects of High Performance Concrete in fresh and hardened state. (08 Marks)
 c. List the applications of light weight concrete. (04 Marks)

OR

- 10 a. What is Geopolymer Concrete? Discuss about its ingredients and method of curing. (08 Marks)
 b. What is Aspect Ratio? How does it influence workability and strength of fibre reinforced concrete? (06 Marks)
 c. List the advantages of RMC. (06 Marks)
