

GBCS Scheme

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15CV/CT44

Fourth Semester B.E. Degree Examination, Dec.2017/Jan.2018

Concrete Technology

Time: 3 hrs.

Max. Marks: 80

- Note: 1. Answer FIVE full questions, choosing one full question from each module.
2. Use of I10262 is permitted.
3. Any missing data may be suitably assumed.

Module-1

- 1 a. List the ingredients of cement. State their importance. (08 Marks)
b. What are the products of hydration of cement? (04 Marks)
c. Mention the tests conducted on coarse aggregates. (04 Marks)

OR

- 2 a. Describe manufacturing sand and its role in reducing carbon foot print. (08 Marks)
b. Explain the importance of plasticizers and Fly Ash as Admixtures in concrete. (08 Marks)

Module-2

- 3 a. List the factors that affect workability of concrete. Mention the laboratory tests conducted to measure workability of a concrete sample. (08 Marks)
b. Explain the ill effects of segregation and bleeding in concrete. (08 Marks)

OR

- 4 a. Enumerate the role of curing in the performance of a concrete structural element. Name at least four methods of curing. (08 Marks)
b. Explain how heat of hydration is controlled in mass concrete works. (08 Marks)

Module-3

- 5 a. Describe the effect of water-cement ratio on strength of concrete. (08 Marks)
b. Brief the Internal and External factors influencing Durability of a concrete structure. (08 Marks)

OR

- 6 a. Write the process of disintegration of concrete due to acid attack. Suggest the remedial measures to control sulphate attack. (08 Marks)
b. Give the names of insitu concrete testing methods. Mention the principle and limitations of ultrasonic pulse velocity test. (08 Marks)

Module-4

- 7 a. Explain the concept of "Mix design" pertaining to concrete. (08 Marks)
b. Illustrate the steps to be followed as per IS recommendations method for a mix design. (08 Marks)

OR

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.

- 8 Arrive at a mix proportion for a concrete of mix grade 20, to suite the following given data :
Max size of agg. = 20mm ; Slump required = 100mm ; Quality control = good ; Exposure condition = mild ; 53 grade OPC having SP.gravity = 3.15 ; Sp. Gravity of FA & CA = 2.55 and 2.70 respectively ; Water absorption = 0.5% and 1.0% for CA and FA respectively. FA is confirming to zone III. (16 Marks)

Module-5

- 9 a. Provide comparison between Insitu concrete and Ready mixed concrete (08 Marks)
b. Briefly explain the properties of "Fiber Reinforced Concrete". State the practical application of the same. (08 Marks)

OR

- 10 a. What should be the properties of materials to be used in "Light weight concrete" preparation? (08 Marks)
b. State the advantages of "SSC". List the tests to be carried out to determine the properties of SSC. (08 Marks)
