CBCS SCHEME

USN | | | | | | | | | |

15CV44

Fourth Semester B.E. Degree Examination, Aug./Sept.2020
Concrete Technology

Time: 3 hrs. Max. Marks: 80

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. Use of IS 10262-2009 is permitted.
3. Any missing data may be assumed suitably.

Module-1

1 a. Explain with the help of flow chart manufacture process of cement. **(08 Marks)**

b. What are the different types of Aggregate tests? Explain any one type of aggregate tests with neat sketch and appropriate formulas used. **(08 Marks)**

OR

2 a. Explain the function of water in concrete and write the suitability of water (quality) in mixing concrete. **(08 Marks)**

b. List the mineral and chemical admixtures used in concrete. Briefly explain about Fly ash and GGBS as admixtures. **(08 Marks)**

Module-2

3 a. What is workability? What are the factors affecting workability? **(08 Marks)**

b. Explain : (i) Compaction factor test (ii) Slump test , with neat sketches. **(08 Marks)**

OR

4 a. Explain the process of manufacture of concrete. **(08 Marks)**

b. What is 'curing of concrete'? Write the methods of curing? Explain in detail accelerated curing? **(08 Marks)**

Module-3

5 a. Define the terms : (i) Water-cement ratio (ii) Gel Space ratio (iii) Maturity concept **(06 Marks)**

b. Explain the term 'Creep of concrete' and factors affecting creep. **(06 Marks)**

c. Write a note on Plastic Shrinkage. **(04 Marks)**

OR

6 a. What is durability of concrete and its importance? Explain the mechanism of carbonation. **(08 Marks)**

b. Why non destructive testing is required? Explain briefly ultrasonic pulse velocity method. **(08 Marks)**

Module-4

7 a. Explain the selection criteria of ingredients used for mix design in brief. **(08 Marks)**

b. Illustrate the steps to be followed as per IS recommendations method for a mix design. **(08 Marks)**

OR

8 Determine a mix proportion for a concrete mix grade 40, to suit the following data:
(i) Type of cement : OPC 43 grade confirming to IS 8112
(ii) Maximum size of aggregate : 20 mm
(iii) Minimum cement content : 320 kg/m^3
(iv) Slump required : 50 mm
(v) Quality control : Good
(vi) Exposure condition : Severe (for RCC)
(vii) Specific gravity of cement : 3.15
(viii) Specific gravity of FA and CA : 2.70 and 2.65
(ix) Water absorption : Coarse aggregate = 0.5%
Fine aggregate = 1.0%
Fine aggregate is confirming to zone – I. **(16 Marks)**

Module-5

9 a. What is RMC? Explain briefly methods of concreting and advantages of RMC. **(08 Marks)**
b. Mention the need for self compacting concrete. Mention its applications and properties. List the different tests carried out for determining SCC. **(08 Marks)**

OR

10 a. Write a note on the following :
(i) Types of Fibres and their properties
(ii) Light weight concrete mix and their applications **(08 Marks)**
b. What would be the properties of materials to be used in "Light weight concrete" preparation? **(08 Marks)**

* * * * *