

## CBCS SCHEME

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17CV/CT44

Fourth Semester B.E. Degree Examination, Dec.2019/Jan.2020

## Concrete Technology

Time: 3 hrs.

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.  
2. IS – 10262 mix design code is allowed.

Module-1

- 1 a. Explain the manufacturing process of cement by wet process using flow chart. (10 Marks)  
b. Name chemical and mineral admixtures and explain flyash and Metakaolin admixtures in detail. (10 Marks)

OR

- 2 a. Define Hydrating Cement. With schematic representation, explain structure of hydrated cement paste. (08 Marks)  
b. Name the alternatives of River sand and explain the properties of M – Sand. (06 Marks)  
c. Explain the importance of Aggregate in concrete. (06 Marks)

Module-2

- 3 a. Explain two laboratory tests for measurement of workability. (10 Marks)  
b. Explain the manufacturing process of concrete. (10 Marks)

OR

- 4 a. Explain the methods of curing. (10 Marks)  
b. Describe the effect of heat of hydration during mass concreting at project sites. (05 Marks)  
c. Explain Segregation and Bleeding. (05 Marks)

Module-3

- 5 a. Explain the factors influence the strength of Hardened concrete. (06 Marks)  
b. What are the factors which affects the creep? (04 Marks)  
c. Explain the types of Shrinkage in concrete. (10 Marks)

OR

- 6 a. What are the Internal and External factors influence the durability of concrete? (12 Marks)  
b. Briefly explain the Rebound hammer test and Ultrasonic pulse velocity test. (08 Marks)

Module-4

- 7 a. Explain the concept of mix design. (06 Marks)  
b. List out the data required for mix proportioning. (04 Marks)  
c. Write the steps involved in the methods of mix design. (10 Marks)

OR

1 of 2

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



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- 8 Design a concrete mix for M<sub>35</sub> grade using fly ash. Other data are given below :
- |  |                      |            |
|--|----------------------|------------|
| a. Type of cement  | OPC 43 grade         |            |
| b. Type of flyash  | F type               |            |
| c. Maximum size of aggregate   | 20 mm                |            |
| d. Minimum cement content  | 320kg/m <sup>3</sup> |            |
| e. Maximum water cement ratio  | 0.45                 |            |
| f. Workability   | 100 mm slump         |            |
| g. Exposure condition  | Severe (RCC)         |            |
| h. Method of placing concrete  | Pumping              |            |
| i. Degree of supervision   | good                 |            |
| j. Chemical admixture  | Super plasticizer    |            |
| k. Specific gravity of cement  | 3.15                 |            |
| l. Specific gravity of fly ash   | 2.2                  |            |
| m. Specific gravity of coarse aggregate  | 2.78                 |            |
| n. Specific gravity of fine aggregate  | 2.70                 |            |
| o. Water absorption :  |                      |            |
| i) Coarse aggregate  | 0.5%                 |            |
| ii) Fine aggregate   | Nil                  |            |
| p. Free surface moisture   |                      |            |
| i) Coarse aggregate  | Nil                  |            |
| ii) Fine aggregate   | 1.5%                 |            |
| q. Grading of coarse aggregate is conforming to table 2 of IS 383 and grading of fine aggregate is falling Zone I. |                      | (20 Marks) |

**Module-5**

- 9 a. Explain the production of Ready Mixed concrete. (12 Marks)  
 b. What is Self Compacting Concrete? Explain the materials required for self compacting concrete used. (08 Marks)

**OR**

- 10 a. Explain the types of fibres used in Fiber Reinforced Concrete and its application. (10 Marks)  
 b. Explain properties of light weight concrete. (04 Marks)  
 c. List out advantages of Light weight concrete. (06 Marks)

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