



# CBCS SCHEME

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15CV/CT44

## Fourth Semester B.E. Degree Examination, June/July 2018 Concrete Technology

Time: 3 hrs.

Max. Marks: 80

*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. Why is concrete the most widely used engineering material? (04 Marks)
- b. What is an admixture? Name different types of admixtures. (04 Marks)
- c. Explain the manufacture of cement by dry process, with neat flow chart. (08 Marks)

OR

- 2 a. What are Bogue's compounds? Explain the influence of  $C_2S$  in strength gaining process. (06 Marks)
- b. Name the different tests on cement. (04 Marks)
- c. Explain briefly the action of accelerator and super plasticizers in the concrete mix, also name any two accelerators used in industry. (06 Marks)

### Module-2

- 3 a. What is workability? Explain the factors affecting workability. (08 Marks)
- b. Explain good and bad practices of making of fresh concrete. (08 Marks)

OR

- 4 a. What is segregation? How to prevent segregation in the concrete mix? (08 Marks)
- b. Name the tests conducted on workability of concrete. (04 Marks)
- c. What is curing? Name the methods of curing. (04 Marks)

### Module-3

- 5 a. What is strength of concrete? What are the factors affecting the strength of concrete? (08 Marks)
- b. Define creep, what are the factors affecting the creep of concrete. (08 Marks)

OR

- 6 a. How do you define durability? What are the factors improves the durability of concrete and explain briefly? (08 Marks)
- b. What is sulphate attack? How to minimize sulphate attack? Also mention its action with equations. (08 Marks)

### Module-4

- 7 a. Explain the main factors on which the IS-10262 mix design depends. (08 Marks)
- b. Draw flow chart of IS code mix design. (08 Marks)

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.



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OR

- 8 It is required to design a M<sub>35</sub> grade concrete mix having a slump of the order of 150-175mm for pile foundations of a structure. Use IS:10262-Indian standard recommended guidelines to estimate preliminary mix proportions. Consider very severe exposure condition during the service life of the structure.

Data:

- I) Size of aggregate = 10mm to 20mm
- II) Specific gravity of aggregate = 2.67
- III) Moisture content = 1 percent
- IV) Absorption = 0.5 percent
- V) Fine aggregate fineness modulus = 2.80 (grading zone I)
- VI) Specific gravity = 2.62
- VII) Moisture content = 4.1
- VIII) Absorption = 1%
- IX) Cement OYC grade 53
- X) Specific gravity of cement = 3.15.

Other conditions

- i) Standard deviation = 2MPa
- ii) Air content = 4 to 5%
- iii) Maximum allowable w/c ratio = 0.45
- iv) Minimum cement content = 340 kg/m<sup>3</sup>
- v) Density of water = 1000 kg/m<sup>3</sup>
- vi) Bulk density of  
Cement = 1450 kg/m<sup>3</sup>  
Fine aggregate = 1700 kg/m<sup>3</sup>  
Coarse aggregate = 1800 kg/m<sup>3</sup>.

(16 Marks)

**Module-5**

- 9 a. What is RMC? What are the factors on which the property of RMC depends? (08 Marks)  
b. What is light weight concrete? Name the aggregates used as light weight aggregate? Explain its property. (08 Marks)

OR

- 10 a. What is self compacting concrete? How it is different from high performance concrete? (04 Marks)  
b. What are the different types of fibers used in fiber reinforced concrete? (04 Marks)  
c. Explain maximum and minimum values of workability values measured in L-box, V-tunnel and flow test. Explain the above tests briefly. (08 Marks)

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