CBCS SCHEME

USN | | | | | | | | | | |

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)**

OR

8 It is required to design a M_{35} 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 20m
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^3
v) Density of water = 1000 kg/m^3
vi) Bulk density of

Cement = 1450 kg/m^3
Fire aggregate = 1700 kg/m^3
Coarse aggregate = 1800 kg/m^3. **(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-tunel and flow test. Explain the above tests briefly. **(08 Marks)**

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