CBCS Scheme

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

15CV/CT44

Fourth Semester B.E. Degree Examination, June/July 2017
Concrete Technology

Time: 3 hrs. Max. Marks: 80

Note: 1. ***Answer FIVE full questions, choosing one full question from each module.***
2. ***Use of IS – 10262 – 2009 is permitted.***

Module-1

1 a. Write the chemical composition of cement. Write the flow chart for dry process. **(08 Marks)**
b. Explain the importance of size, shape and texture of aggregate. **(08 Marks)**

OR

2 a. Explain the role of Admixtures in Concrete Technology. **(08 Marks)**
b. Name any four types of cement. State the properties and applications of any two types of cement. **(08 Marks)**

Module-2

3 a. Define Workability. Explain the factors influencing workability of concrete. **(08 Marks)**
b. Write note on Segregation and Bleeding. **(08 Marks)**

OR

4 a. Why curing is needed to concrete? Explain curing methods. **(08 Marks)**
b. Why compaction is required to concrete? Explain Compaction methods by vibration. **(08 Marks)**

Module-3

5 a. Explain the factors influencing the strength of concrete. **(08 Marks)**
b. Write note on : i) Creep ii) Shrinkage of concrete. **(08 Marks)**

OR

6 a. Explain Maturing concept of concrete. **(08 Marks)**
b. The strength of a sample of fully matured concrete is found to be 40MPa. Find the strength of identical concrete at the age of 7 days when cured at an average temperature during day time at 20^0C and night time at 10^0C. Take A = 32 , B = 54.Use % strength of concrete at maturity $= A + B \log_{10}\left(\frac{\text{maturity}}{1000}\right)$. **(08 Marks)**

Module-4

7 Design a concrete mix for M_{20} grade of concrete with the following design stipulation as per IS 10262 – 2009 guide lines.
a. Grade designation: M20.
b. Type of cement : Ultra Tech PPC.
c. Maximum size of Aggregate [MSA] : 20mm
d. Minimum cement content : 320 kg/m^3.
e. Maximum W/C ratio : 0.55.
f. Workability : 50 – 75mm (slump)

g. Exposure condition : Mild
h. Degree of supervision : Good.
i. Type of Aggregate : Crushed angular aggregate.
j. Max. cement content : 450 kg/m^3.
k. Chemical Admixture : Not recommended.
l. Specific gravity of cement : 3.05.
m. Specific gravity of Coarse Aggregate : 2.68.
n. Specific gravity of Fine Aggregate : 2.66.
o. Water absorption of Coarse Aggregate : 0.85%.
p. Water absorption of Fine Aggregate : 1.15%.
q. Free (surface) moisture of Coarse Aggregate : NIL.
r. Free moisture of Fine Aggregate : NIL.
s. Sieve Analysis of Coarse Aggregate : Conforming to table 2 of IS : 383.
t. Sieve Analysis of Fine Aggregate : Conforming to zone – II of IS : 383. **(16 Marks)**

OR

8 What is meant by concrete mix design? Write the steps involved in the method of mix design (IS -10262 - 2009). **(16 Marks)**

Module-5

9 a. Explain the materials used for self – compacting concrete. **(08 Marks)**
b. State the advantages and disadvantages of RMC. **(08 Marks)**

OR

10 a. Explain the fiber types used in Fiber Reinforced Concrete. **(08 Marks)**
b. State the advantages of Light Weight Concrete. **(08 Marks)**

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