

SIXTH SEMESTER DIPLOMA EXAMINATION IN CIVIL
ENGINEERING — MARCH, 2015

CONCRETE TECHNOLOGY

[Time : 3 hours

(Maximum marks : 100)

PART—A

(Maximum marks : 10)

Marks

I Answer the following questions in one or two sentences. Each question carries 2 marks.

1. Differentiate between uniform grading and gap grading.
2. What is heat of hydration ?
3. What is curing ?
4. What is characteristic compressive strength ?
5. Distinguish between high strength and high performance concrete. (5×2=10)

PART—B

(Maximum marks : 30)

II Answer *any five* of the following. Each question carries 6 marks.

1. Write short notes on :
 - (i) Sulphate resisting portland cement
 - (ii) low heat portland cement
2. What are :
 - (i) admixtures
 - (ii) accelerators
 - (iii) retarders
 Give examples for each.
3. Discuss briefly about the various methods of compacting concrete.
4. Define shrinkage and creep. What are the factors affecting shrinkage and creep ?
5. Define :
 - (i) Mean strength
 - (ii) Variance
 - (iii) Standard deviation
6. Write short notes on self compacting concrete.
7. What are the factors affecting the properties of fibre reinforced concrete ?

(5×6=30)

PART—C

(Maximum marks : 60)

(Answer *one* full question from each unit. Each full question carries 15 marks.)

UNIT—I

- III (a) What is soundness of cement and how is it tested? 8
 (b) Explain the classification of aggregates based on weight and size. 7

OR

- IV (a) Write short notes on plasticizers and super plasticizers? 8
 (b) Describe the importance of quality of water used for concreting. 7

UNIT—II

- V (a) What is workability of concrete? How compaction factor test is conducted? 8
 (b) What is the need and effects of curing? 7

OR

- VI (a) Explain briefly on the properties of hardened concrete. 8
 (b) Describe the test carried out to determine the flexural strength of concrete. 7

UNIT—III

- VII (a) What are the factors influencing the choice of mix proportions? 8
 (b) Explain the variables in mix proportioning. 7

OR

- VIII (a) Write the design procedure based on IS 10262 – 1982. 8
 (b) List the various methods of mix proportioning. 7

UNIT—IV

- IX (a) Write short notes on :
 (i) Steel fibre reinforced concrete (ii) polymer concrete 8
 (b) What are the precautions to be taken during under water concreting? 7

OR

- X (a) List the defects in concrete. 8
 (b) Explain the factors influencing corrosion of reinforcement. 7