

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
MANAGEMENT/COMMERCIAL PRACTICE — APRIL, 2018

CONCRETE TECHNOLOGY

[Time : 3 hours

(Maximum marks : 100)

(I. S 456/2000, I.S 10262/2007 are premitted in the
examination for reference)

PART — A

(Maximum marks : 10)

Marks

I Answer *all* questions in one or two sentences. Each question carries 2 marks.

1. What are the functions of alumina in cement ?
2. What are the prime functions of aggregate in concrete ?
3. Define creep in concrete.
4. List any four methods used for the proportioning of concrete mixes.
5. What is carbonation ?

(5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. Explain hydration and what are the compounds formed during hydration.
2. State the qualities of water used for concreting.
3. List the terms associated with workability and discuss the factors affecting workability.
4. State the important properties of fresh concrete.
5. State the objectives and basic principles of mix design.
6. List the different types of special concrete.
7. List any six precautions to be taken in under water concreting.

(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 are the precautions taken for storing cement ? Explain. 8
- (b) State the functions of C-S-H, C_2S & C_3S in concrete after the hydration of cement. 7

OR

- IV (a) Classify different types of cements. 8
- (b) List the different classification of aggregates. 7

UNIT — II

- V (a) Explain segregation and bleeding in concrete. 8
- (b) Explain the importance of curing and what are the methods adopted for curing ? 7

OR

- VI (a) List the tests for measuring workability and explain slump test. 8
- (b) What are the factors affecting the strength of concrete ? 7

UNIT — III

- VII (a) List the basic design requirements as per IS 10262/2007 for mix design. 8
- (b) List the factors affecting the choice of mix proportions. 7

OR

- VIII (a) List the requirement for a good concrete mix proportion. 8
- (b) Explain the basic considerations for mix proportioning. 7

UNIT — IV

- IX (a) Explain the test for self compatibility of SCC. 8
- (b) What are the effect of hot weather concreting ? 7

OR

- X (a) Distinguish between HPC and HSC. 8
- (b) List the causes of cracks formation in concrete. 7

PART — C

(Maximum marks : 60)

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

UNIT — I

- III (a) What are the precautions taken for storing cement ? Explain. 8
- (b) State the functions of C-S-H, C_2S & C_3S in concrete after the hydration of cement. 7

OR

- IV (a) Classify different types of cements. 8
- (b) List the different classification of aggregates. 7

UNIT — II

- V (a) Explain segregation and bleeding in concrete. 8
- (b) Explain the importance of curing and what are the methods adopted for curing ? 7

OR

- VI (a) List the tests for measuring workability and explain slump test. 8
- (b) What are the factors affecting the strength of concrete ? 7

UNIT — III

- VII (a) List the basic design requirements as per IS 10262/2007 for mix design. 8
- (b) List the factors affecting the choice of mix proportions. 7

OR

- VIII (a) List the requirement for a good concrete mix proportion. 8
- (b) Explain the basic considerations for mix proportioning. 7

UNIT — IV

- IX (a) Explain the test for self compatibility of SCC. 8
- (b) What are the effect of hot weather concreting ? 7

OR

- X (a) Distinguish between HPC and HSC. 8
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