TED (15) – 6015
(Revision – 2015)

N22 - 02119

Reg.No……..
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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/ COMMERCIAL PRACTICE – NOVEMBER – 2022

CONCRETE TECHNOLOGY

(Maximum Marks : 100) (Time : 3 hours)

PART – A
(Maximum Marks : 10)

Marks

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

1. What are the bogue compounds?
2. What is bleeding of concrete?
3. Define the term modular ratio.
4. What is the relationship between characteristic strength and target mean strength?
5. Explain the effect of freezing and thawing on concrete? (5x2=10)

PART –B
(Maximum Marks : 30)

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

1. "Hydration of cement is a chemical reaction" Justify the statement with the reaction compounds.
2. What are the conditions of standard consistency test and how it is conducted?
3. Briefly explain the variables in mix propotioning.
4. How the process of corrosion occurs in RCC. Explain with the causes and remedial measures.
5. Discuss in detail about self compacting concrete?
6. How the flexural strength test of concrete is conducted.
7. Explain the different fibres used in the concrete. (5x6=30)

PART – C
(Maximum Marks : 60)
(Answer **one full** question from each unit. Each full question carries 15 marks)

UNIT – I

III. (a) Discuss in detail about the different types of cement. (9)

(b) How is the soundness test of cement is conducted. (6)

OR

IV. (a) Discuss the different admixtures in detail. (9)

(b) Explain the manufacture of cement by wet process with the help of flow chart. (6)

UNIT – II

V. (a) Briefly explain the different methods of curing of concrete. (9)

(b) What is workability? How it can be measured in the laboratory. (6)

OR

VI. (a) What is gel space ratio and how it is related to strength? Calculate the gel space ratio on 60% hydration and theoretical strength of a sample of concrete made with 500g of cement with water/ cement ratio of 0.55. (9)

(b) Briefly explain the different types of shrinkage in concrete. (6)

UNIT –III

VII. (a) Design M 45 grade of concrete as per the IS 10262 : 2009. The following datas may be used. Type of cement = O.P.C- 43 grade, Fine Aggregate = Zone-II, Sp. Gravity Cement = 3.15, Fine Aggregate = 2.75, Coarse Aggregate (20mm)=2.80, Workability = 125 mm slump, type of concreting-pumpable concrete. (15)

OR

VIII. (a) Write the design procedure of concrete mix as per IS 10262 : 2009. (9)

(b) Define the following terms.

(i) Standard deviation. (ii) Variance. (iii) Co-efficient of variation. (6)

UNIT – IV

IX. (a) Explain in detail about the light weight concrete. (9)

(b) Explain the following

(i) Sulphate attack (ii) Alkali-Aggregate reaction (iii) Carbonation. (6)

OR

X. (a) How concreting is done in extreme hot weather conditions. Explain? (9)

(b) Explain the different types of polymer concrete. (6)

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