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B.Tech. (Civil) 4th Semester (G Scheme)

Examination, July-2022

MATERIAL TESTING AND EVALUATION

Paper- PCC-CE-210-G

Time allowed : 3 hours

[Maximum marks : 75]

Note: Attempt five questions selecting one question from each unit. Question no. 1 is compulsory.

1. Define any six of the following:- 6×2.5=15
- (i) Differentiate between PCC and RCC.
 - (ii) Define High alumina cement.
 - (iii) Define Rapid hardening portland cement.
 - (iv) Define Fire resistance of concrete.
 - (v) Classify aggregates.
 - (vi) Define elasticity and plastic deformation.
 - (vii) Define elastic deformation.
 - (viii) Name various heavy construction equipments.

Unit-I

2. (a) Name and explain the various physical properties of cement. 8
- (b) Write down various advantages and disadvantages of concrete. 7

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3. (a) Explain in detail classification of lime on the basis of their composition and preparation along with their properties. 10
(b) What are the various uses of lime? 5

Unit-II

4. (a) Define Workability. Explain various factors affecting workability.
(b) What are the requirements of workability? 5
5. Describe the principles of concrete mix design. What are the different factors on which selection of a mix design depends? Also explain the variation of concrete strength. 15

Unit-III

6. (a) Explain the different types of steel. 7.5
(b) Write a short note on mechanical behavior and mechanical characteristics of steel. 7.5
7. (a) What are the various tests that can be conducted on a steel rod? Explain the tensile test on a steel rod in detail. 9
(b) Write short note on any one tests of steel:- 6
(i) Bending test
(ii) Torsion test

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Unit-IV

8. (a) Explain in detail elastic and plastic deformation of materials. 8
(b) Define the following terms:- 7
(i) Fatigue of material
(ii) Shrinkage
(iii) Creep
9. (a) What do you understand by term heavy construction? Also explain the precautions taken care during the construction of bridges in detail. 10
(b) Write a short note on " Hot mix plant". 5

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