4E1211

Roll No. 075

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B. Tech. IV - Sem. (Main) Exam., May - 2019

PCC Civil Engineering

4CE4-08 Concrete Technology

Time: 2 Hours **Maximum Marks: 120**

Instructions to Candidates:

Attempt all ten questions from Part A, five questions out of seven questions from Part B and four questions out of five questions from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used /calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1. NIL 2. NIL

PART – A

(Answer should be given up to 25 words only) **[10×2=20]**

All questions are compulsory

Q.1 Explain Design Mix and Nominal Mix.

Q.2 List the factors affecting workability of Concrete.

Q.3 Describe heat of hydration with various reactions.

Q.4 How would you classify aggregates based on size and shape?

Q.5 Explain requirements of good formwork.

Q.6 Describe factors affecting permeability of concrete.

Q.7 Discuss bleeding of concrete and factors affecting it.

Q.8 What do you understand by "Initial Curing" and "Final Curing".

Q.9 Explain Durability in Concrete and factors affecting durability of concrete.

Q.10 Describe role of admixtures in concrete.

PART – B

(Analytical/Problem solving questions) **[5×8=40]**

Attempt any five questions

Q.1 Describe Batching, mixing and Transportation of Concrete.

Q.2 Differentiate between Retarder and Accelerator and write their applications. Describe air entraining admixtures in detail.

Q.3 Discuss causes of deterioration of concrete.

Q.4 Describe advantages of use of flyash in concrete and precautions while its use in concrete. Also explain the properties of flyash.

Q.5 What do you mean by workability of concrete and explain the factors which affect workability? How will you determine workability by slump test?

Q.6 Explain any four IS testing procedure for coarse aggregate.

Q.7 Describe various types of superplasticizers, their chemical composition, difference and their effect in concrete.

PART – C

(Descriptive/Analytical/Problem Solving/Design Questions) **[4×15=60]**

Attempt any four questions

Q.1 Design concrete mix of grade of M25 by I.S method using ordinary Portland cement of 43 grade fine aggregate conforming to zone II, assuming quality control as good, take sp gravity of aggregate and coarse aggregate 3.15 & 2.85 respectively. Use maximum size of aggregate as 20mm.Assume suitable data wherever necessary.

Q.2 Explain with neat sketch requirements for good formwork for columns and its foundation.

Q.3 Describe Self Compacting Concrete and its various properties.

Q.4 Explain Half Cell Potentiometer with neat sketch.

Q.5 Explain salient features of sulfate resisting concrete and its various applications.
