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06CV81

Eighth Semester B.E. Degree Examination, May/June 2010
Advanced Concrete Technology

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting at least TWO questions from each part.***

PART – A

1 a. Enumerate the importance of Bogue's compound in ordinary portland cement. **(08 Marks)**
b. Discuss the factors responsible in affecting the strength of concrete. **(06 Marks)**
c. What are the parameters defining rheology of fresh concrete? Explain. **(06 Marks)**

2 a. Discuss the effects of super plasticizers on fresh and hardened concrete. **(08 Marks)**
b. Explain the effect of air-entrainment on the properties of concrete. **(06 Marks)**
c. What is GGBS? Explain the performance of GGBS in concrete. **(06 Marks)**

3 a. Explain the factors affecting mix design of concrete. **(08 Marks)**
b. Calculate the gel/space ratio and the theoretical strength of a sample of concrete, made with 500 gm cement with 0.5 water/cement ratio, on full hydration and at 60% hydration. **(06 Marks)**
c. Explain the factors which affect permeability of concrete. **(06 Marks)**

4 a. Bring out the discussion about thermal properties of concrete. **(08 Marks)**
b. Write short notes on alkali aggregate reaction. **(06 Marks)**
c. Explain corrosion mechanism and its control. **(06 Marks)**

PART – B

5 a. What is ready mix concrete? Explain the types of ready mix concrete in practice. **(08 Marks)**
b. Explain with a sketch the process of pumping of concrete. **(06 Marks)**
c. What is high volume fly ash concrete? Explain its special properties. **(06 Marks)**

6 a. Define self compacting concrete. Explain the necessity of obtaining self compacting concrete. **(08 Marks)**
b. List the advantages of SCC over normal concrete. **(06 Marks)**
c. What is fibre reinforced concrete? Discuss the properties of various fibres. What is their effect on concrete? **(06 Marks)**

7 a. What is the definition of high performance concrete? What are the critical parameters involved in the producing of HPC? **(08 Marks)**
b. Discuss the properties of common light weight – concrete. Explain the steps to arrive. **(06 Marks)**
c. What is ferrocement? Discuss the application of ferrocement in the construction industry. **(06 Marks)**

8 a. Explain the influence of the rate of application of load on the compressive strength of concrete. **(08 Marks)**
b. What are the techniques of measuring pluse velocity through concrete? Explain. **(06 Marks)**
c. What are the applications of the pulse velocity methods to evaluate concrete structures? **(06 Marks)**

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