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ET-522

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B.Tech. Civil (Construction Management)

Term-End Examination

December, 2012

ET-522 : CONCRETE TECHNOLOGY AND CONSTRUCTION TECHNIQUES

Time : 3 Hours *Maximum Marks : 70*

Note : *Answer **any five** questions. Support your answer with neat sketches wherever necessary.*

1. (a) Discuss where would you use the following cements and why ? **2x3=6**

(i) Low heat cement

(ii) Expansive cement

(iii) Super sulphated cement

(b) Describe ***any two*** of the following phenomenon. **2x4=8**

(i) Bulking of sand and its practical significance

(ii) Alkali aggregate reaction and its results.

(iii) Sulphate attack on concrete.

2. (a) Describe the air entraining admixtures and factors affecting the amount of air-entrainment. 7

(b) Name any three tests to determine workability of concrete mix. Describe the compaction factor test in detail. 7

3. (a) Differentiate between "segregation" and 'bleeding" of concrete. Describe the harmful effects of bleeding on the properties of concrete. 7

(b) Differentiate between "Volume batching" and "Weigh batching". Discuss their relative merits and demerits. 7

4. (a) Describe the term "characteristic strength" and 'target mean strength" of concrete. 7

(b) Using I.S. method of concrete mix design, determine the quantity of coarse aggregates and fine aggregates required for 1 m^3 of concrete for the following data : 7

Entrapped air = 2% ; w/c ratio = 0.5

quantity of cement = 383 kg/m^3 specific gravity of cement, coarse - aggregate and fine aggregate = 3.15, 2.60 and 2.60 respectively. Sand content as percentage of total aggregate by absolute volume = 31.5%.

5. (a) Describe various precautions to be taken to have minimum difficulty in pumping concrete. Discuss the advantages of pumping concrete. 7

(b) Suggest the type of admixtures preferred for under water concreting. Describe the 'Tremie Method' of underwater concreting. 7

6. (a) Draw a neat labelled sketch of a Wooden framework for monolithic R.C.C beam and slab floor. 7

(b) Name any two methods for ground water lowering during deep excavation. Describe any one method in brief. 7

7. (a) Discuss advantages of precast construction. Describe "precast R.C plank and joist system". 7

(b) Write a short note on under reamed pile. Also give their applications. 7