No. of Printed Pages : 3

ET-522

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B.Tech. Civil (Construction Management)

Term-End Examination

June, 2013

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. use of calculator is **permitted**. Assume any missing data, if any, suitably.*

1. (a) Name the cement compounds and explain their role in development of strength initially. 7

(b) After sieve analysis of 1 kg of sample of fine aggregate, following observations were obtained : 7

Sieve size	10 mm	4.75 mm	2.36 mm	1.18 mm	600 μm	300 μm	150 μm	Pan
Weight retained on each sieve in gms	00	30	120	150	200	320	150	30

Determine % weight retained, cumulative% weight retained and cumulative% passing for each sieve. Also find the Fineness Modulus.

2. Differentiate between the following **(any four)** : **4x3½=14**

(a) Accelerator and retarder admixtures

(b) Flaky and elongated aggregates

(c) Entrapped and entrained air in concrete

(d) Aggregate crushing value and impact value

(e) End bearing and friction piles

(f) Characteristic strength and target mean strength of concrete

3. (a) Discuss the requirements of a good workable concrete. Describe the effect of shape and size of coarse aggregates on workability of concrete mix. 7

(b) Describe the necessity of curing of concrete and briefly discuss the advantages of steam curing. 7

4. (a) Describe the indirect tension test of concrete. 7

(b) What do you understand by shrinkage of concrete ? Describe various factors affecting the drying shrinkage of concrete. 7

5. (a) Discuss the "Abrahm's Water Cement Ratio Law" and its limitations. 7

(b) What do you understand by Gel space ratio ? 7

6. (a) Describe the effects of Hot-weather on various properties of concrete. 7

(b) Describe the effects of fibre characteristics on the properties of fibre-reinforcement concrete. 7

7. (a) With the help of neat labelled sketch of a climbing formwork, describe its salient features in brief. 7

(b) Describe the procedure to calculate the load carrying capacity of a single pile by pile load test. 7