Reg. No. : | | | | | | | | | | |

Question Paper Code: 52697

M.E. DEGREE EXAMINATION, NOV 2016

Elective

Structural Engineering

15PSE507 – ADVANCED CONCRETE TECHNOLOGY

(Regulation 2015)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

1. The resistance of aggregate to failure by impact is known as

   (a) Bond (b) Toughness (c) Hardness (d) Abrasion

2. The ratio of ultimate creep strain to elastic strain is known as

   (a) Creep coefficient (b) Drying creep
   (c) Specific creep (d) Basic Creep

3. The measure of variability between any single observed data and the mean strength is called as

   (a) Variance (b) Standard Deviation
   (c) Mean strength (d) None of these

4. In FRC, the aspect ratio is defined as the ratio of its _____ to diameter.

   (a) radius (b) Length (c) area (d) circumference

5. Plastic shrinkage results in

   (a) Evaporation (b) Surface cracks (c) Hydration (d) Absorption

PART B - (5 x 3 = 15 Marks)

6. State the functions of super plasticizer in fresh concrete.

7. Define: Durability of concrete.

8. Distinguish between design mix and nominal mix.

9. What is meant by high performance concrete?

10. What is meant by slip form technique?

PART C - (5 x 16 = 80 Marks)

11. (a) Explain the hydration process of cement mentioning the functions of Bogue's compounds. (16)

Or

(b) Discuss the methods of combining aggregates to obtain specific grading. (16)

12. (a) Classify shrinkage and explain the different types of shrinkages. (16)

Or

(b) Make a comparative study on the slump test and compaction factor test and explain briefly the procedure and their limitations. (16)

13. (a) Design a concrete mix for M30 grade concrete using ACI recommended guidelines. Assume necessary data. (16)

Or

(b) Design a concrete mix for M20 grade concrete using IS recommended guidelines. Assume necessary data. (16)

14. (a) With neat sketches explain the various tests conducted to test the properties of fresh self compacting concrete. (16)

Or

(b) What are the types of fibres available in market? Explain how the use of fibre influences the properties of concrete. (16)

15. (a) Explain with neat sketches the tremie method of underwater concreting. (16)

Or

(b) Explain in detail the process of manufacturing of concrete. (16)

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