Code: 9A01502

R09

B.Tech III Year I Semester (R09) Supplementary Examinations June 2017

CONCRETE TECHNOLOGY

(Civil Engineering)

Time: 3 hours Max. Marks: 70

Answer any FIVE questions

All questions carry equal marks

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1 (a) Explain how the Portland cement got its name.

(b) What are the different raw materials required for the manufacture of cement. Explain how the quality of raw materials influences the properties of cement.

2 (a) Explain the phenomenon of Bulking of aggregates.

(b) What is a grading curve? How is it obtained?

3 (a) Define the term workability and explain its importance.

(b) Describe how a K-slump test can be used for measuring workability of fresh concrete.

4 (a) Define the term curing of concrete? How does it influence the development of strength of concrete?

(b) Explain the following methods of curing:
(i) Membrane curing. (ii) Water curing. (iii) Application of heat.

5 (a) Explain in detail how the flexural strength of concrete is determined with a neat sketch.

(b) Explain how grade of concrete affects the flexural strength of concrete.

6 Discuss about the Poisson's ratio of concrete.

7 Design a concrete mix of M40 grade for an important RCC work. The specific gravities of coarse aggregate and Fine aggregate are 2.67 and 2.73 respectively. The bulk density of coarse aggregate is 16020 kg/m^3 and fineness modulus of fine aggregate is 2.76. A slump of 50 mm is necessary. The water absorption of coarse aggregate is 1% and free moisture in fine aggregate is 3%. Design the concrete mix using ACI method. Assume any missing data suitably.

8 (a) Define the term Ready mixed concrete? And explain its advantages over conventional concrete.

(b) Discuss the shrinkage characteristics of No-fines concrete.

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