Code: R7310103

R07

III B. Tech I Semester (R07) Supplementary Examinations, May 2012

CONCRETE TECHNOLOGY

(Civil Engineering)

Time: 3 hours Max Marks: 80

Answer any FIVE questions
All questions carry equal marks
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1 (a) Discuss the chemical composition of ordinary Portland cement.
(b) What are the Indian Standard specifications as per I.S.269 – 1989 for 33 grade ordinary Portland cement with respect to chemical requirements?

2 (a) "The strength of the parent rock does not exactly represent the strength of the coarse aggregate in concrete". Validate the above statement with reasoning.
(b) What is the significance of aggregate impact value? Explain how it is determined in the laboratory.

3 (a) Define the term workability. Explain its significance.
(b) How the workability of concrete is to be adjusted according to the size of the aggregate and reinforcement particulars in RCC work?

4 (a) What is steam curing? How is it different from ordinary curing?
(b) Differentiate between stem curing and high pressure steam curing. What are the advantages of high pressure steam curing?

5 (a) What are the various factors affecting the measurement of pulse velocity in the ultrasonic pulse velocity test on concrete? Explain in detail.
(b) What are the applications of pulse velocity methods of NDT?

6 (a) Draw the typical stress-strain curves for concretes of varying richness of mix proportions.
(b) Explain how the dynamic modulus of elasticity of concrete can be determined.

7 Design M20 concrete mix for the following data by ISI method:
7 days strength of cement……..=38 N/mm²
Maximum size of aggregate……..=20 mm-angular
Degree of workability…….=0.90 C.F or 30 mm slump
Degree of quality control……...=good
Type of exposure……..=mild
Specific gravity of cement…….=3.15
Specific gravity of coarse aggregate=2.60
Specific gravity of fine aggregate…=2.6
Zone of fine aggregate……..=III

8 Write the short notes on the following:
(a) Light weight aggregates.
(b) Types of polymer concrete.
(c) SIFCON.

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