

Code: 9A01502

**R9**

B.Tech III Year I Semester (R09) Supplementary Examinations, May 2013

**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) Discuss the difference between the wet and dry process of manufacturing of Portland cement.  
(b) Draw the flow diagrams for wet and dry process of manufacture of cement and explain the same.
  
- 2 (a) Explain the significance of grading of aggregates with reference to concrete making.  
(b) Explain different methods of measurement of moisture content of aggregates.
  
- 3 (a) What do you understand by the term "Workability"?  
(b) Discuss the various factors affecting the workability of concrete.
  
- 4 (a) What do you understand by grade of concrete? Discuss different grades of concrete as per IS-456-2000.  
(b) Describe in detail the accelerated curing test for concrete. Bring out its advantages and limitations.
  
- 5 (a) What are the various factors affecting the compressive strength of concrete?  
(b) Explain in detail about the rebound hammer test (NDT) that is conducted on existing structure to assess its strength with a neat diagram.
  
- 6 Explain about the following:  
(a) Factors affecting modulus of elasticity and Poisson's ratio.  
(b) Factors affecting the shrinkage and creep.
  
- 7 Design a concrete mix of M35 grade for an water tight slab. Take a standard deviation of 5.00 MPa. The specific gravities of coarse aggregate and fine aggregate are 2.63 and 2.68 respectively. The bulk density of coarse aggregate is 1610 kg/m<sup>3</sup> and fineness modulus of fine aggregate is 2.72. A slump of 60mm is necessary. The water absorption of coarse aggregate is 1% and free moisture in fine aggregate is 2%. Design the concrete mix using ACI method. Assume any missing data suitably.
  
- 8 Explain the various types of polymer concrete? And also explain the various properties of polymer impregnated concrete?

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