

Code: 9A01502

B.Tech III Year I Semester (R09) Regular & Supplementary Examinations December 2014

CONCRETE TECHNOLOGY

(Civil Engineering)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions
All questions carry equal marks

- 1 (a) Define the term admixture. How is it used in the production of concrete?
(b) Enumerate different types of admixtures.
- 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) What are the types of segregation? What are the factors responsible for segregation? What preventive measures you take against segregation?
(b) Define laitance. Discuss the factors responsible for it.
- 4 Write short notes on:
 - (a) Maturity concept of concrete.
 - (b) Effect of maximum size of aggregate on strength.
 - (c) Relation between compressive and tensile strength.
 - (d) Aggregate – cement bond strengths.
- 5 (a) Explain in detail about the effect of restraint on a specimen while it is under compression. Also explain how the shear stress varies with the distance from the platen.
(b) Why usually a height/diameter = 2 is adopted for cylinders? Explain in detail.
- 6 (a) What is meant by shrinkage induced cracking? Suggest the measures to reduce it.
(b) Explain in detail about the moisture movement in concrete discussing about the factors controlling.
- 7 Proportion a concrete mix by DOE method for a RCC footing which will be exposed to the moderate condition. The concrete is to be designed for a mean compressive strength of 20 MPa at the age of 28 days. Slump of 65 mm is required. A requirement of 25 mm cover is prescribed. Maximum size of aggregate is 20 mm uncrushed aggregate will be used. Sieve analysis shows that 50% passes through 600 microns sieve. The bulk specific gravity of aggregate is found to be 2.65. Assume any other data required suitably.
- 8 (a) Define the term light weight concrete. What are the merits and demerits?
(b) Explain how saw dust can be used in producing light weight concrete. Discuss its applications.
