

B.Tech III Year I Semester (R13) Regular & Supplementary Examinations November/December 2016

CONCRETE TECHNOLOGY

(Civil Engineering)

Time: 3 hours

Max. Marks: 70

PART – A

(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- Define hydration of cement.
 - What are pozzolonas?
 - Define the terms: (i) Bleeding. (ii) Laitance.
 - Define workability.
 - What are the types of concrete used?
 - What is meant by No-fines concrete?
 - How will the bacterial concrete heal the cracks in concrete?
 - Define creep of concrete.
 - What is the principle of mix proportioning?
 - How acceptance criteria help in mix design of concrete?

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

- 2 (a) List out the different types of mineral admixtures and explain any two of them.
(b) Explain the procedure for initial setting time of cement with neat sketch.

OR

- 3 What are the factors affecting the alkali-aggregate reaction? Explain in detail the remedial measures used to control alkali-aggregate reaction.

UNIT – II

- 4 (a) Explain the factors affecting the workability.
(b) Write short notes on manufacture of concrete.

OR

- 5 (a) What are the factors affecting the strength of the concrete?
(b) How do you determine the flexural strength of concrete? Explain.

UNIT – III

- 6 (a) Explain different fibres that are used in the FRC.
(b) What is meant by polymer concrete and what are its properties?

OR

- 7 (a) Write short notes on SIFCON and cellular concrete.
(b) Explain the high performance concrete.

UNIT – IV

- 8 (a) With a neat graph, explain different moduli of elasticity of concrete.
(b) What is meant by creep of concrete? Explain.

OR

- 9 (a) Explain the Rebound hammer with neat sketch.
(b) Write short notes on UPV and pull out test.

UNIT – V

- 10 (a) What are the various factors affecting the mix proportion?
(b) Explain the procedure of BIS method of mix design.

OR

- 11 Design M₂₀ grade concrete as per ISO 10262 method:
Cement specific gravity – 3.15
Fine aggregate specific gravity – 2.60, Zone - I
Coarse aggregate – crushed angular & 20 mm down specific gravity – 2.55
Chemical admixture Specific gravity – 1.145, Optimum dosage – 1%
Slump = 100 mm. Assume any data missing.
