

C020632(020)

**B. Tech. (Sixth Semester) Examination,
April-May 2022**

(AICTE Scheme)

(Civil Engg. Branch)

CONCRETE TECHNOLOGY

(Elective)

Time Allowed : Three hours

Maximum Marks : 100

Minimum Pass Marks : 35

Note : All questions are compulsory. Attempt part (a) of each question and any two parts from (b), (c) and (d). Distribution of marks : Part (a) 4 marks, and part (b), (c) and (d) 8 marks each.

Unit-I

1. (a) What are the basic qualities of mixing and curing water?

[2]

- (b) Define Hydration of cement. Explain structure of hydrated cement paste.
- (c) What do you understand by Alkali aggregate reaction? Also explain factors affecting AAR.
- (d) What are the various methods of combining aggregates?

Unit-II

- 2. (a) Explain Segregation and Bleeding in concrete.
- (b) What is workability of concrete? What are the different factors which affect workability?
- (c) What is Admixture in concrete? Explain mineral admixture with example.
- (d) Explain compaction factor test with the help of neat sketch.

Unit-III

- 3. (a) Explain the concept of 'maturity' in concrete.
- (b) Discuss the factors causing plastic shrinkage, drying shrinkage and carbonation Shrinkage.

[3]

- (c) What do you understand by permeability of concrete? What are the causes/reasons of permeability of concrete and how it can be reduced?
- (d) What is creep of concrete? Explain in detail.

Unit-IV

- 4. (a) What are the principles of concrete mix design?
- (b) Explain in detail the non-destructive testing of concrete using Rebound hammer.
- (c) Design a concrete mix for heavily reinforced section, using IS Code 10262 : 2019 guidelines. Assume other conditions yourself.
- (d) Difference between Destructive & Non-Destructive testing of concrete.

Unit-V

- 5. (a) What do you understand by special concrete? What is need of special concrete?
- (b) Explain with appropriate sketches how a 'tremie' is used to place concrete underwater.

[4]

- (c) Explain Vacuum dewatered concrete with the help of suitable diagram.
- (d) Explain Self-compacted concrete, its properties and use.