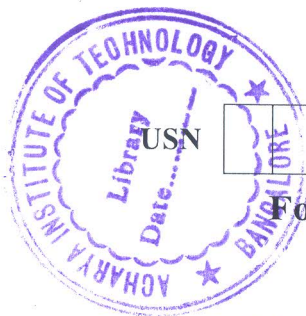


CBCS SCHEME

15CV44



USN

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Fourth Semester B.E. Degree Examination, July/August 2021 Concrete Technology

Time: 3 hrs.

Max. Marks: 80

Note : 1. Answer any FIVE full questions.
2. Use of IS10262 – 2009 and IS456 – 2000 is permitted.

- 1 a. Write the chemical composition of ordinary Portland cement and write their functions. (08 Marks)
b. Explain three distinct operations involved in the manufacturing process of cement. (08 Marks)
- 2 a. Explain the importance of size, shape and texture of aggregates. (08 Marks)
b. Briefly explain : i) Plasticizers ii) Retarders iii) Flyash. (08 Marks)
- 3 a. Define Workability. Explain the factors affecting workability. (08 Marks)
b. Briefly explain Compacting factor test for measurement of workability. (08 Marks)
- 4 a. Briefly explain Segregation and Bleeding of concrete. (08 Marks)
b. Briefly explain the process of manufacturing of concrete. (08 Marks)
- 5 a. Briefly explain Factors influencing strength. (08 Marks)
b. Define Creep. Explain the factors affecting creep and write their effects. (08 Marks)
- 6 a. Define Durability of concrete and explain the factors influencing durability of concrete. (08 Marks)
b. Briefly explain the factors affecting Shrinkage. (08 Marks)
- 7 a. Write the factors to be considered for Mix design. (05 Marks)
b. Explain the concept of Mix design. (03 Marks)
c. Explain the factors affecting Choice of Mix proportion. (08 Marks)
- 8 With the help of the following design stipulation and test data for materials, design a M30 grade concrete :
I. Design Stipulation for proportioning :
 - i) Grade designation = M30
 - ii) Type of cement = OPC 43 grade
 - iii) Maximum nominal size of aggregates = 20mm
 - iv) Minimum cement content = 350kg/m³
 - v) Maximum water cement ratio = 0.50
 - vi) Workability = 25-50mm (slump)
 - vii) Exposure condition = Moderate
 - viii) Degree of supervision = good
 - ix) Type of aggregate = crushed angular aggregate
 - x) Maximum cement content = 450kg/m³
 - xi) Chemical admixture = Not recommended.

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

II. Test data for Materials :

- i) Specific gravity of cement = 3.15.
- ii) Specific gravity of aggregate = 2.68
- iii) Specific gravity of coarse aggregate = 2.65
- iv) Water absorption of coarse aggregate = 0.6%
- v) Water absorption of fine aggregate = 1.0%
- vi) Free moisture of coarse aggregate = Nil
- vii) Free moisture of fine aggregate = Nil
- viii) Sieve analysis of coarse aggregate = Conforming to Table of IS : 383.
- ix) Sieve analysis of fine aggregate = Conforming to zone I of IS : 383.

Any missing data may be assumed suitably.

(16 Marks)

- 9 a. Write the properties of Ready mix concrete and write their advantages and disadvantages. (08 Marks)
- b. Write the materials required for self compacting concrete and explain the procedure of producing and placing of the self compacting concrete. (08 Marks)
- 10 a. Write the types of fibres used in fibre reinforced concrete and factors affecting properties of FRC. (08 Marks)
- b. What are the advantages of light weight concrete and write the types and properties of light weight concrete. (08 Marks)
