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Total Number of Pages : 02

Course: B.Tech  
Sub\_Code: RCI4D002

4<sup>th</sup> Semester Regular / Back Examination: 2022-23

SUBJECT: CONCRETE TECHNOLOGY

BRANCH(S): CIVIL

Time : 3 Hour

Max Marks : 100

Q.Code : M561

Answer Question No.1 (Part-1) which is compulsory, any eight from Part-II and any two from Part-III.

The figures in the right hand margin indicate marks.

**Part-I**

**Q1 Answer the following questions:**

**(2 x 10)**

- What are the four main compounds of Ordinary Portland Cement? State their percentage by mass.
- As per IS specification, residue of cement should not exceed what percent when sieved on a 90 micron IS sieve?
- Distinguish between coarse aggregate and fine aggregate.
- What do you mean by bulking of sand?
- What do you mean by fresh concrete?
- Define workability of concrete.
- What do you mean by curing of concrete? What is the curing period of concrete?
- What is the size of the concrete cube used for testing its compressive strength?
- What do you mean by mix design?
- What is self compacting concrete?

**Part-II**

**Q2 Only Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve) (6 × 8)**

- Discuss briefly about the ingredients of Portland cement along with their functions.
- Explain the process of hydration of cement.
- What is the role of admixture? Distinguish between mineral admixture and chemical admixture.
- Explain the various factors which affect the workability of concrete. Distinguish between segregation and bleeding.
- Explain Abram's law. Draw the figure to show the relationship between water cement ratio and compressive strength of concrete.
- Explain the purpose of curing of concrete. Also explain the various methods adopted for curing of concrete.
- Explain the various parameters which control the strength of concrete.

- h) Describe briefly the flexure strength of concrete.
- i) What do you mean by non destructive testing of concrete? Explain any one method of non destructive testing.
- j) Distinguish between modulus of elasticity and dynamic modulus of elasticity.
- k) Explain the various factors which influence creep of concrete.
- l) Explain the concept of quality control of concrete.

### Part-III

#### Only Long Answer Type Questions (Answer Any Two out of Four)

- Q3 a) Explain any two tests conducted to determine the physical properties of cement. (8)  
b) What do you mean by sieve analysis of aggregates? Explain grading of fine and coarse aggregates. (8)
- Q4 a) Explain the slump test method and its outcome. Why this test is conducted? (8)  
b) Explain the step wise procedure of manufacture of concrete. (8)
- Q5 a) Explain the procedure for conducting the compression test of concrete. (8)  
b) What do you mean by shrinkage of concrete? Explain the types of shrinkage. (8)
- Q6 a) What do you mean by mix design of concrete? What are the various factors which influence the mix proportions? (8)  
b) Explain about light weight aggregate concrete. (8)