



# MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY AND MANAGEMENT

(AN AUTONOMOUS INSTITUTION)

(Approved by AICTE, New Delhi &amp; Affiliated to JNTUH, Hyderabad)

Accredited by NBA and NAAC with 'A' Grade &amp; Recognized Under Section 2(f) &amp; 12(B) of the UGC act, 1956

III B.Tech I Sem Supply End Examination, December 2022

## Concrete Technology

(Civil)

Time: 3 Hours.

Max. Marks: 70

Note: 1. Question paper consists: Part-A and Part-B.

2. In Part - A, answer all questions which carries 20 marks.

3. In Part - B, answer any one question from each unit.

Each question carries 10 marks and may have a, b as sub questions.

### PART- A

(10\*2 Marks = 20 Marks)

- |       |  |    |     |     |
|-------|--|----|-----|-----|
| 1. a) | What is meant by soundness of aggregate?                         | 2M | C01 | BL1 |
| b)    | What is alkali-aggregate reaction?                               | 2M | C01 | BL1 |
| c)    | Define workability? What are the factors affecting workability   | 2M | C02 | BL1 |
| d)    | Write short note on Gel space ratio law?                         | 2M | C02 | BL1 |
| e)    | List out the factors affecting the results of strength test?     | 2M | C03 | BL1 |
| f)    | Define Dynamic modulus of Elasticity.                            | 2M | C03 | BL1 |
| g)    | Define Plastic Shrinkage cracking?                               | 2M | C04 | BL1 |
| h)    | Differentiate between no fines concrete & high density concrete. | 2M | C04 | BL1 |
| i)    | Define Durability of concrete?                                   | 2M | C05 | BL1 |
| j)    | Define creep of concrete.  | 2M | C05 | BL1 |

### PART- B

(10\*5 Marks = 50 Marks)

- 2 What are the various ingredients in concrete? Explain the role of ingredients played by each of them. 10M C01 BL4

OR

- 3 a) Explain the function and utility of admixtures used in concrete. 5M C01 BL4  
b) Describe the types of admixtures used in concrete. 5M C01 BL2
- 4 a) Explain significance of porosity and absorption of aggregate? 5M C02 BL4  
b) Explain the bulking phenomenon of aggregates. 5M C02 BL4

OR

- 5 Explain the significance of grades of aggregates with reference to concrete making and also explain different method of measurement of moisture content of aggregate 10M C02 BL4

- 6 a) What is Hydration of cement? Explain hydration reactions in cement paste and heat of hydration 5M C03 BL4  
 b) Distinguish between segregation and bleeding. 5M C03 BL2

**OR**

- 7 a) Discuss different tests used for finding workability of concrete? And explain any two of them. 5M C03 BL2  
 b) Can sea water be used for making concrete? Explain. 5M C03 BL4

- 8 Describe the factors affecting the strength of concrete 10M C04 BL2

**OR**

- 9 a) Discuss the relation between various types of mechanical strengths of concrete 5M C04 BL2  
 b) Discuss about various types of NDT's used in assessing the concrete strength. 5M C04 BL2

- 10 Design a concrete mix of M30 grade using IS method with the following data. 10M C05 BL6  
 Max. Nominal size of aggregate available: 20mm  
 Degree of workability: 0.9 compaction factor  
 Degree of quality control : good  
 Type of exposure : Mild  
 Cement used : OPC 43 grade  
 Fine aggregate: Zone III  
 Specific gravity of Cement :3.15  
 Specific gravity of fine aggregate: 2.60  
 Specific gravity of Coarse aggregate: 2.65

**OR**

- 11 Write a short notes on the following 10M C05 BL1  
 a) No fines concrete b) Fibre reinforced concrete

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**CO - Course Outcome**

**BL - Blooms Taxonomy Levels**