*R20 Regulation*

*Subject code:* **3P4AF**

# TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A' Grade)

## B.Tech IV Semester Regular Examinations, July 2022

## CONCRETE TECHNOLOGY

### (CIVIL ENGINEERING)

***Maximum Marks: 70***

Date:02.08.2022 Duration: 3 hours

**Note:**
1. **This question paper contains two parts A and B.**
2. **Part A is compulsory which carries 20 marks. Answer all questions in Part A.**
3. **Part B consists of 5 Units. Answer any one full question from each unit which carries 10M.**
4. **Each question carries 10 marks and may have a, b, c, d as sub questions.**

Part-A

All the following questions carry equal marks (10x2M=20 Marks)

1 What are the raw materials for the manufacture of cement?
2 What is meant by hydration of cement?
3 Define bulk density.
4 Identify the thermal properties of aggregates.
5 What are the recommended tests for measuring workability?
6 Define segregation.
7 Why NDT is used to test the hardened concretes?
8 What is meant by gel space ratio?
9 Compare lightweight concrete with ordinary concrete.
10 List out the factors affecting the choice of mix proportions.

Part-B

Answer All the following questions. (10MX 5=50Marks)

11 a) Briefly explain various grades and their characteristics of Cement. (5)
b) Discuss the different tests performed on cement. (5)

OR

12 What are the types of admixtures? Explain. (10)

13 Explain the followings:
i)Alkali–aggregate reaction (5) ii) Sieve analysis (5)

OR

14 Write any three test procedures to determine the properties of aggregates. (10)

15 a) Explain the factors affecting workability. (6)
b) Discuss the effect of time and temperature on workability (4)

OR

16 Explain the process of manufacturing the concrete. (10)

17 List the various experiments conducted on hardened concrete. Explain any two. (10)

OR

18 a) Write short notes on water/cement ratio (4)

b) Describe the relation between creep and shrinkage with a neat sketch(6)

19 Explain self-compacting concrete and fibre-reinforced concrete with suitable examples. (10)

OR

20 Describe the BIS method of concrete design with the necessary data stipulated. (10)