*R22 Regulation* *Subject code:4E4AC*

# TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

## B.Tech IV Semester Regular/Supplementary Examinations, June 2026

## CONCRETE TECHNOLOGY

*(CE)*

***Maximum Marks: 60*** Date:12.06.2026 Duration: 3 hours

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

**IS:10262 CODAL PROVISION IS ALLOWED**

Part-A

| All the following questions carry equal marks (10X1M=10 Marks) | | Marks | CO | Bloom Tx |
|---|---|---|---|---|
| 1.a) | List the Bogues compounds of cement. | 1M | 1 | 1 |
| b) | Write a note on hydration of cement. | 1M | 1 | 1 |
| c) | Define bulking of sand. | 1M | 2 | 1 |
| d) | What is fineness modulus? | 1M | 2 | 1 |
| e) | Define bleeding in concrete. | 1M | 3 | 1 |
| f) | List out the steps in manufacture of concrete. | 1M | 3 | 1 |
| g) | Define water-cement ratio. | 1M | 4 | 1 |
| h) | State Abram's law. | 1M | 4 | 1 |
| i) | What is durability of concrete? | 1M | 5 | 1 |
| j) | Define mix design of concrete. | 1M | 5 | 1 |

Part-B

| Answer All the following questions. (5X10M=50Marks) | | Marks | CO | Bloom Tx |
|---|---|---|---|---|
| 2 | Explain in detail about the chemical composition of cement and its functions. | 10M | 1 | 3 |
| | OR | | | |
| 3 | Define Admixtures. Explain the types of Admixtures. | 10M | 1 | 3 |
| 4 | Explain classification and properties of aggregates in detail. | 10M | 2 | 3 |
| | OR | | | |
| 5 | Describe sieve analysis and grading curves in detail. | 10M | 2 | 3 |
| 6 | Explain the term workability and factors affecting it. | 10M | 3 | 3 |
| | OR | | | |
| 7 | Describe different tests to measure workability. | 10M | 3 | 3 |
| 8 | Discuss in detail about the factors affecting strength of concrete. | 10M | 4 | 2 |
| | OR | | | |

| | | | | |
|---|---|---|---|---|
| 9 | Discuss the term creep and shrinkage in detail. | 10M | 4 | 2 |
| 10 | Design the mix proportions for a concrete of M30 grade with the following data.<br>Grade: M40; Type of cement : PPC conforming to IS1489; Maximum nominal size of aggregate: 20mm; exposure condition : severe; workability ; 75 mm (slump); degree of site control : Good; type of aggregate : Crushed angular aggregate; Maximum cement content not including fly ash : 450kg/$m^3$; chemical admixture type : super plasticizer –normal; specific gravity of cement: 2.88; specific gravity of coarse aggregate : 2.74; specific gravity of fine aggregate : 2.65; specific gravity of chemical aggregate : 1.145, fine aggregate conforming to grading zone II of IS 383. Assume any data suitably. | 10M | 5 | 4 |
| | OR | | | |
| 11 | Explain factors affecting mix design of concrete. | 10M | 5 | 3 |