Graphic Era HILL UNIVERSITY
Established by an Act of the State Legislature of Uttarakhand (Adhiniyam Sankhya 12 of 2011)
University under section 2(f) of UGC Act, 1956

Term Evaluation (Odd) Semester September 2025

Roll no.....

Name of the Course: Diploma ~~III Semester~~ (Engineering)
Semester: III
Name of the Paper: Concrete Technology
Paper Code: DTCE 304
Time: 1.5-hour **Maximum Marks: 50**

Note:
(i) Answer all the questions by choosing any one of the sub-questions
(ii) Each question carries 10 marks.

Q1. CO 1 (10 Marks)

a. Explain the physical properties of Ordinary Portland Cement (OPC) and describe how these properties influence the performance of cement in construction.

OR

b. Write the procedure for determining standard consistency of cement. Why is this test important before carrying out other tests like setting time?

Q2. CO 2 (10 Marks)

a. Explain the phenomenon of bulking of sand. How does it occur, and what is its effect on concrete mix proportioning?

OR

b. Describe the procedure for determining the crushing value, impact value, and abrasion value of coarse aggregates. What do these values indicate about the quality of aggregates?

Q3. CO 1 (10 Marks)

a. What is soundness of cement? Explain the Le Chatelier's method for determining soundness and state why it is important for long-term durability.

OR

b. Write short notes on the types of special cement, their physical properties, IS specifications, and field applications.

Q4. CO 2 (10 Marks)

a. What are flakiness index and elongation index of coarse aggregates? How are they determined, and what are the acceptable limits as per IS codes?

OR

b. Define specific gravity and bulk density of fine aggregates. Discuss their importance in proportioning concrete mixes.

Q5. CO 2 (10 Marks)

a. Describe the procedure for determining the fineness modulus and grading zone of sand by sieve analysis. Why is grading of sand important in concrete?

OR

b. What is meant by soundness of aggregates? Explain the test method used for determining soundness.