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Bengaluru

Mid Term Examinations - October 2026

Date: 05/10/2026 **Time:** 02:00 PM - 03:30 PM

Course Code: CIV3444 **Course Name:** Construction Quality and Safety

Semester: Fifth Semester **Max. Marks:** 50 **Weightage:** 50%

CO - Levels	CO1	CO2
Marks	24	66

PART A: Answer Following Questions. 10 M

Q.N.	Questions	M	CO	BT
1	Define Project Management and state any two major project parameters that it seeks to control.	2	CO1	BT1
2	What are the three major phases of a construction project life cycle?	2	CO1	BT1
3	Define: i) Quality Control and ii) Quality Assurance	2	CO2	BT1
4	Identify whether each of the following is Inspection or Testing: i) Measuring reinforcement spacing at site and comparing it with the approved drawing. ii) Determining the compressive strength of hardened concrete specimens.	2	CO2	BT2
5	Define Sampling and state what is meant by a representative sample.	2	CO2	BT1

PART B : Answer Any 1 Following Questions. 10 M

Q.N.	Questions	M	CO	BT
6	Explain the following principles of organization and discuss their importance in a construction organization: i. Span of Control ii. Flexibility iii. Unity of Objective iv. Authority and Responsibility	10	CO1	BT2
7	Explain the six functions of Project Management and discuss how these functions operate together throughout a construction project rather than as independent activities.	10	CO1	BT2

PART C: Answer Any 1 Following Questions. 15 M

Q.N.	Questions	M	CO	BT
8	A total of 28 m^3 of M30 concrete is placed during one shift. a) Using the concrete sampling frequency covered in the course, determine the minimum number of samples required. The site team proposes to collect all the samples during the first 30 minutes of an eight-hour concreting operation. Assess whether this sampling approach is appropriate and justify your answer. (6 Marks) b) Three specimens belonging to one concrete sample give compressive strengths of 32 MPa, 33 MPa and 22 MPa. Apply the ±15% criterion discussed in the course to determine whether the sample test result is valid. Show the necessary calculations and state the conclusion. (9 Marks)	15	CO2	BT3

9	A concrete-strength result from a structural member is lower than expected. Before taking a decision, the Quality Engineer finds that the specimen identification is incomplete, the curing record is unavailable and the testing-machine calibration status is uncertain. Apply the five factors to be considered in making a construction quality decision and explain how the Quality Engineer should proceed before deciding the disposition of the affected concrete.	15	CO2	BT3

PARTD: Answer Any 1 Following Questions. 15 M				
Q.N.	**Questions**	**M**	**CO**	**BT**
10	During pre-pour inspection of slabs on three consecutive floors, several locations are found with inadequate reinforcement cover. Each time, the cover is corrected and the slab is subsequently approved for concreting. Further investigation shows that: • cover blocks of different sizes are stored together; • workers select the blocks visually; • the Method Statement does not clearly define the cover-block selection procedure; • cover is checked only after most reinforcement fixing is completed. Apply the principles of Total Quality Management to this situation and recommend measures that the construction organization should implement to reduce recurrence of the problem. Your answer should distinguish between repeatedly correcting the defect and improving the process that causes it.	15	CO2	BT3
11	A contractor is executing two similar building projects. **Project-01** • First-pass pre-pour approval = 65% • Reinspection = 35% • Average clearance time = 5.0 hours • Recurring reinforcement observations = frequent **Project-02** • First-pass pre-pour approval = 90% • Reinspection = 10% • Average clearance time = 2.1 hours • Recurring observations = low Further investigation indicates that Project-02 uses early self-checks, segregated and identified cover blocks, drawing-revision verification before work starts and internal QC inspection before consultant inspection. As the Quality Manager of Project-01: 1. Identify the type of benchmarking represented by this comparison and justify your answer; (3 Marks) 2. Explain why simply setting a target of 90% does not complete the benchmarking process; (4 Marks) 3. Apply the benchmarking process to recommend appropriate practices that Project-01 could adopt and explain how their effectiveness should subsequently be evaluated. (8 Marks)	15	CO2	BT3