

Register Number:.....

M.E DEGREE EXAMINATIONS: NOV / DEC 2024

(Regulation 2018)

Third Semester

CIVIL ENGINEERING

P18CMT3001: Construction Quality and Safety Management

COURSE OUTCOMES

CO1: Understand the various safety concepts and requirements applied to construction projects.

CO2: Applying design for safety in construction industry.

CO3: Learn to avoid construction accidents, suggest safety programmes.

CO4: Apply quality control aspects in planning and management.

CO5: Learning concepts of quality assurance and control techniques in construction.

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Match the theories with their respective concepts

CO1 [K₂]

Theory	Concept
A. Problem Areas in Construction Safety	i. Regularly checking the site for potential hazards
B. Job-Site Safety Assessment	ii. Provides rewards for safe work practices
C. Safety Meetings	iii. Areas where safety risks are most common
D. Safety Incentives	iv. human error
E. Elements of an Effective Safety Programme	v. Policies, procedures, training, and regular assessments

a) iii,i,iv,ii,v

b) i,v,ii,iv,iii

c) ii,v,i,iv,iii

d) iv,ii,iii,i,v

2. Pick the correct statements.

CO1 [K₂]

The key functions of safety management system are, (1) Planning for safety, (2) Organizing for safety, (3) Scheduling for safety, (4) Controlling for safety

9. Sequence the benchmarking steps: CO5 [K₂]
1. Deciding what to benchmark
 2. Understanding current performance
 3. Planning
 4. Studying others
 5. Learning from the findings
- a) 1-2-3-4-5 b) 3-2-1-4-5
- c) 2-1-3-4-5 d) 3-1-2-4-5
10. While setting Quality objective, _____ to be considered CO5 [K₁]
- a) Suppliers need b) Organizational need
- c) Customer need d) Worker need

PART B (10 x 2 = 20 Marks)

11. Mention elements of safety in construction safety. CO1 [K₁]
12. According to OSHA, which elements do you suggest for safety management. CO1 [K₁]
13. In a construction firm, what is the necessity of sub contractual obligation? CO2 [K₂]
14. Enumerate the role of first line supervisors. CO2 [K₁]
15. Discuss the significance of legal implications involved in construction safety. CO3 [K₁]
16. What is an occupational hazard, and how does it impact the health and safety of workers in various industries? CO3 [K₂]
17. Define quality circle. CO4 [K₁]
18. List out the objectives of quality policy. CO4 [K₁]
19. Mention the three key quality statements typically used in quality management CO5 [K₁]
20. Differentiate between QA and QC in construction projects, explaining their distinct roles and purposes CO5 [K₂]

PART C (6 x 5 = 30 Marks)

21. Describe the role of project coordination in enhancing safety management. CO1 [K₂]
22. Discuss why safety incentives are important in the workplace. CO2 [K₂]
23. Explain the various human factors involved in construction safety, analyzing how each factor contributes to the overall safety culture and risk management in CO3 [K₄]

construction projects.

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| 24. | Explain how Taguchi Loss function differs from traditional loss function assumed from specifications and tolerances. | CO4 | [K ₄] |
| 25. | Outline the importance of reliability testing in ensuring product performance and customer satisfaction. | CO5 | [K ₄] |
| 26. | Analyze how ergonomics contributes to quality control in construction projects | CO4 | [K ₄] |

Answer any FOUR Questions
PART D (4 x 10 = 40 Marks)

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| 27. | Analyze the various problem areas that has to be focused on construction safety in the construction of a high-rise apartment and provide necessary solutions. | CO1 | [K ₄] |
| 28. | Discuss role of first line middle level managers in ensuring safety of a construction safety. | CO2 | [K ₂] |
| 29. | Illustrate the various causes of accidents in construction projects with suitable examples. | CO3 | [K ₂] |
| 30. | Identify the key factors that influence quality in highway construction projects and explain how each factor contributes to the overall project performance. | CO4 | [K ₄] |
| 31. | Analyze the steps involved in conducting a Failure Mode and Effects Analysis (FMEA) and evaluate its significance in improving the quality and reliability of construction projects. | CO5 | [K ₄] |
