

Roll No



**PRESIDENCY UNIVERSITY
BENGALURU**

SET A

**SCHOOL OF ENGINEERING
END TERM EXAMINATION - JAN 2024**

Semester : Semester V - 2021

Course Code : CIV2039

Course Name : Construction Quality and Safety

Program : B.Tech.

Date : 11-JAN-2024

Time : 9:30AM - 12:30 PM

Max Marks : 100

Weightage : 50%

Instructions:

- (i) Read all questions carefully and answer accordingly.
- (ii) Question paper consists of 3 parts.
- (iii) Scientific and non-programmable calculator are permitted.
- (iv) Do not write any information on the question paper other than Roll Number.

PART A

ANSWER ALL THE QUESTIONS

5 X 2M = 10M

1. List the four main types of Benchmarking
(CO2) [Knowledge]
2. List two examples each of Construction Risks for (i) Owners and (ii) Contractors
(CO4) [Knowledge]
3. List the advantages of Functional Organization
(CO1) [Knowledge]
4. List the Technical causes affecting construction safety
(CO3) [Knowledge]
5. Define Risk identification and Risk mitigation.
(CO4) [Knowledge]

PART B

ANSWER ALL THE QUESTIONS

5 X 10M = 50M

6. By applying project organization, a project team optimizes resources, provides clear communication about roles and responsibilities and reduces potential roadblocks. To maintain a strong project organization, the team needs proper direction and training from colleagues and supervisors. Each company has its own approach to project organization, depending on how many employees they have and what the project entails. In the context of a construction project organization, what do you think are the five most effective principles that should be applied for effective control and supervision. Discuss the same.

(CO1) [Comprehension]

7. Consider the following three proposals:

Proposals	Demand		
	Low	Average	High
	P = 0.3	P = 0.45	P = 0.25
Proposal A	2000	4000	5000
Proposal B	1500	4000	6000
Proposal C	90,000	2,50,000	3,00,000

Using quantitative risk analysis, determine the proposal which has highest risk.

(CO4) [Comprehension]

8. Suggest the type of PPE to be provided for the construction staff working in the above situations

(i) A construction staff involved in shotcreting or concrete gunting.

(ii) A construction staff involved in welding and wiring of a high voltage transformer.

Also, explain in brief the Level B PPE as per US Environmental Protection Agency with the help of example

(CO3) [Comprehension]

9. A Construction firm has various departments like design, procurement, quantity survey, Finance, sales, marketing, QA/QC and execution. The design department is found to be more efficient than other departments. What type of Benchmarking would you adopt in this situation. Explain the selected benchmarking type in brief. Also, Illustrate the Benchmarking Methodology

(CO2) [Comprehension]

10. Total Quality Management (TQM) can be summarized as a management system for a customer-focused organization that involves all employees in continual improvement. It uses strategy, data, effective communications and involvement of all level employees to integrate the quality discipline into the culture and activities of the organization. In this context, discuss the principles of Total Quality Management. Also, discuss the critical factors for success of TQM.

(CO2) [Comprehension]

PART C

ANSWER ALL THE QUESTIONS

2 X 20M = 40M

11. a) What is meant by Indirect cost in the context of Construction Accident Costs? Discuss the various heads under Indirect costs and bring out examples of costs that are not typically covered under insurance. (10 Marks)

b) Briefly describe the following injuries in Construction – (i) Caught in between (ii) Scaffolding Accidents (iii) Musculoskeletal disorders. (iv) Ladder Accidents (v) Slip and falls (10 Marks)

(CO3) [Application]

12. A company wants to bid for a government project to build and operate a multi-level parking facility building. The construction cost for the project is Rs. 4 Crores. The expected Annual Returns through parking fee along with their probability is presented below along with the duration of returns and the probability corresponding to each expected annual return:

Expected Annual Returns		
Rs. 1 Crores	Rs. 2Crores	Rs. 3 Crores
P = 0.35	P = 0.4	P = 0.25

Duration of Returns			
1 Years	2 Years	3 Years	4 Years
0.20	0.20	0.50	0.10
0.25	0.15	0.40	0.20
0.30	0.20	0.35	0.25

Estimate the probability of loss with the help of Risk Analysis comment on whether the company should bid for the project or not. Take interest rate as 8%

(CO4) [Application]