

AR20**CODE: 20OET412****SET-2****ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)****IV B.Tech I Semester Supplementary Examinations, February-2026
Project Management****(OPEN ELECTIVE)****Time: 3 Hours****Max Marks: 60**

Answer ONE Question from each Unit

All Questions Carry Equal Marks

All parts of the Question must be answered at one place

		Marks	CO	Blooms Level
	<u>UNIT-I</u>			
1.	Explain the difference between economic and non-economic projects with suitable examples.	10	CO1	K2
	(OR)			
2.	Identify the project life cycle phase in which risk management should be applied and justify your answer.	10	CO1	K3
	<u>UNIT-II</u>			
3.	Summarize the main steps involved in performing a technical analysis for a new project.	10	CO2	K2
	(OR)			
4.	Describe common financial issues encountered during project analysis.	10	CO2	K2
	<u>UNIT-III</u>			
5.	Explain the following techniques Net Present Value (NPV), Internal Rate of Return (IRR), Accounting Rate of Return (ARR), and Profitability Index (PI),	10	CO3	K4
	(OR)			
6.	Describe UNIDO Approach to SCBA and how would you determine whether the project is socially profitable?	10	CO3	K3
	<u>UNIT-IV</u>			
7.	Explain different ways to financing of Projects.	10	CO4	K2
	(OR)			
8.	Explain how the contract system with tenders would be applied in this project.	10	CO4	K3
	<u>UNIT-V</u>			
9.	Distinguish between PERT & CPM.	10	CO5	K3
	(OR)			
10.	What are the project parameters for monitoring and controlling?	10	CO5	K2
	<u>UNIT-VI</u>			
11.	Explain the concept of Scientific Management and describe the essential qualities of a good manager.	10	CO6	K3
	(OR)			
12.	Explain the significance of workmen compensation act 1923.	10	CO6	K2

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	<u>UNIT-I</u>	Marks	CO	Blooms Level
1. a)	Discuss in detail the step by step process of EIA along with a flow chart.	5	CO1	Create
b)	Classify different environmental parameters and explain them briefly.	5	CO1	Analyse
	(OR)			
2. a)	Summarize the basic concepts involved in Initial Environmental Evaluation.	5	CO1	Understand
b)	List out various types of EIA and explain them briefly.	5	CO1	Evaluate
	<u>UNIT-II</u>			
3.	Outline the different criteria adopted for the selection of EIA methodology.	10	CO2	Understand
	(OR)			
4.	Discuss in detail about the following EIA methods: (i) Adhoc method (ii) Cost Benefit Analysis	10	CO2	Create
	<u>UNIT-III</u>			
5.	Illustrate the assessment of impact of development activities on wildlife along with a flow chart.	10	CO3	Understand
	(OR)			
6.	Explain in detail about various causes and impacts of deforestation.	10	CO3	Evaluate
	<u>UNIT-IV</u>			
7.	Discuss the different stages of environmental audit with a help of a neat flow chart.	10	CO4	Create
	(OR)			
8.	Explain the various steps considered in evaluation of audit data and preparation of audit report.	10	CO4	Evaluate
	<u>UNIT-V</u>			
9. a)	Categorize the objectives and provisions of The Air Act, 1981.	5	CO5	Apply
b)	Elaborate the important aspects of The Motor Vehicles Act, 1988.	5	CO5	Create
	(OR)			
10.	Explain in detail about the following Acts: (i) The Environmental Act, 1986 (ii) The Water Act, 1974	10	CO5	Evaluate
	<u>UNIT-VI</u>			
11.	Develop an Environmental Impact Assessment (EIA) statement report for a thermal power plant along with the detailed guidelines.	10	CO6	Create
	(OR)			
12.	Develop an Environmental Impact Assessment (EIA) statement report for a chemical industry along with the detailed guidelines.	10	CO6	Create

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UNIT-I

Marks	CO	Blooms Level
10M	CO1	Apply

1. Solve the following linear programming problem using Big-M method
 Maximize $Z = 5x_1 + 3x_2$
 Subject to:
 $2x_1 + x_2 \leq 1$
 $x_1 + 4x_2 \geq 6$
 $x_1, x_2 \geq 0$

(OR)

2. Solve the following linear programming problem using Two Phase Simplex method
 Maximize $Z = 5x_1 + 3x_2$
 Subject to:
 $2x_1 + x_2 \leq 1$
 $x_1 + 4x_2 \geq 6$
 $x_1, x_2 \geq 0$

UNIT-II

3. A manufacturing produces four products A, B, C, D by using two types of machines (Lathes, Milling). The time required on the two machines to manufacturing 1 unit of each of the four products, the profit per unit of the product and the total time available on the two types of machines per day given below.

Machine	Time required per unit for product				Total time available per day in min
	A	B	C	D	
Lathe	7	10	4	9	1200
Milling	3	40	1	1	800
Profit per unit	45	100	30	50	

(a) Find the number of units to be manufacture of each product per day for minimizing the profit.

(b) Find the effect of changing the total time available per day on the two machines from 1200-800 minutes to 1500-1000 minutes.

(OR)

4.	Solve the following linear programming problem using Simplex method Maximize $Z = 3x_1 + 5x_2 + 4x_3$ Subject to the constraints $2x_1 + 3x_2 \leq 18$ $2x_1 + 5x_2 \leq 10$ $3x_1 + 2x_2 + 4x_3 \leq 15$ $x_1, x_2, x_3 \geq 0$	10M	CO2	Apply
<u>UNIT-III</u>				
5.	a) Explain the characteristics of queuing theory? b) The arrivals at a telephone booth are considered to be following Poisson law of distribution with an average time of 10 minutes between one arrival and the next. Length of the phone call is assumed to be distributed exponentially with a mean of 3 minutes. (a) What is the probability that a person arriving at the booth will have to wait? (b) What is the average length of queue that forms from time to time?	4M 6M	CO3 CO3	Apply Apply
(OR)				
6.	Train arrives at the yard evening 15 minutes and service time is 33 minutes. If the capacity of the yard is limited to 4 trains. Determine (a) Utilization parameter (or) Traffic intensity (b) Average number of trains in the system. (c) Average number of trains in the system (d) Average waiting time a train spend in the queue (e) Average number of trains spend in the system (f) The Probability that the yard is empty A department store has only one cashier. During the rush hours customer arrives at a rate of 20 customers per hour. The average number of customers that can be handled by the casher is 24 customers per hour. Assume that the condition for use of the single channel queuing model determine (a) Utilization parameter (or) Traffic intensity (b) Average number of customers in the queue. (c) Average number of customers in the system (d) Average time a customer spends in the queue (e) Average number of customers spend in the system (f) Probability that cashier is idle	5M 5M	CO3 CO3	Apply Apply
<u>UNIT-IV</u>				
(OR)				
7	a) Find the maximum or minimum of the function $Z = X_1 + 2X_2 + X_1X_2 - X_1^2 - X_2^2$ b) Solve the following problem using method of Lagrangian multipliers $Z = 4X_1^2 + 2X_2^2$ Subjective to the constraints $X_1 + X_2 = 15,$ $X_1, X_2 \geq 0$	5M 5M	CO4 CO4	Apply Apply
8.	a) Maximize $Z = -x_1^2 - x_2^2 - x_3^2 + 4x_1 + 6x_2$ Subjected to $x_1 + x_2 \leq 2$ $2x_1 + 3x_2 \leq 12$ $x_1, x_2 \geq 0$ using Kuhn-Tucker conditions b) Differentiate linear programming problem and non-linear programming problem	6M 6M	CO4 CO4	Apply Apply

UNIT-V

9. a) What are the applications of the dynamic programming? 4M CO5 Understand
- b) State Bellman's "principle of optimality" and explain with the help of an example? 6M CO5 Understand

(OR)

10. Use Bellman's principle of optimality to find the optimum solution for the following problem 10M CO5 Apply
- Minimize $Z = y_1^2 + y_2^2 + y_3^2$
 Subjected to $y_1 + y_2 + y_3 \geq 10$
 $y_1, y_2, y_3 \geq 0$

UNIT-VI

11. a) A marketing manager of an insurance company has kept complete records of the sales effort of the sales personnel. These records contain data regarding the number of insurance policies sold and net revenues received by the company as a function of four different sales strategies. The manager has constructed the conditional payoff matrix given below, based on his records. (The state of nature refers to the number of policies sold). The number within the table represents utilities. Suppose you are a new salesperson and that you have access to the original records as well as the payoff matrix. Which strategy would you follow? 5M CO6 Apply

State of nature	N_1	N_2	N_3
Probability	0.2	0.5	0.3
Strategy ↓	Utility	Utility	Utility
S_1 (1 call, 0 follow up)	4	6	10
S_2 (1 call, one follow up)	6	5	9
S_3 (1 call, two follow-ups)	2	10	8
S_4 (1 call, three follow-ups)	10	3	7

- b) Differentiate decision making under certainty, decision making under risk, decision making under uncertainty 5M CO6 Understand

(OR)

12. a) Consider a M/s XYZ company, which is developing its annual plans in terms of three objectives: (1) Increased profits, (2) Increased market share and (3) increased sales. M/S XYZ has formulated three different strategies for achieving the stated objectives. The table below gives relative weightage of objectives and scores project the strategy. Find the optimal strategy that yields maximum weighted or composite utility. 5M CO6 Apply

Measure of → Performance of Three objectives	ROI (Profit)	% Increase (Market share)	% Increase (Sales growth)
Weights →	0.2	0.5	0.3
Strategy			
S_1	7	4	9
S_2	3	6	7
S_3	5	5	10

- b) A company is planning for its sales targets and the strategies to achieve these targets. The data in terms of three sales targets, their respective utilities, various strategies and appropriate probability distribution are given in the table given below. What is the optimal strategy? 5M CO6 Apply

Sales targets (\times lakhs)	50	75	100			
Utility	4	7	9			
	Prob.	Prob.	Prob.			
Strategies						
S_1	0.6	0.3	0.1			
S_2	0.2	0.5	0.3			
S_3	0.5	0.3	0.2			

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<u>UNIT-I</u>		Marks	CO	BTL
1.	Define the following terms: i) Smart Contract ii) Digital Currency iii) Consensus Algorithm iv) Digital Ledger v) Wallet	10	CO1	L2
(OR)				
2. a)	Explain how digital cash operates in Blockchain systems. Discuss the role of cryptography in ensuring its security.	5M	CO1	L2
b)	Discuss the different types of Blockchain platforms (Public, Private, Consortium). Compare their features and use cases.	5M	CO1	L4
<u>UNIT-II</u>				
3. a)	What is the need for Consensus Algorithms in Blockchain systems? Discuss their scalability problems with examples.	5M	CO2	L3
b)	What are Hash Functions ? Explain their role in ensuring data integrity and security within Blockchain transactions.	5M	CO2	L4
(OR)				
4. a)	Explain the working principle of Zero-Knowledge Proof (ZKP) systems and their role in privacy-preserving Blockchain applications.	5M	CO2	L3
b)	Differentiate between Permissioned and Permissionless Blockchains .	5M	CO2	L4
<u>UNIT-III</u>				
5.	Compare and contrast the following consensus mechanisms: i) Proof of Work (PoW) ii) Proof of Stake (PoS) iii) Proof of Activity (PoA)	10M	CO3	L3
(OR)				
6. a)	Compare hot wallets and cold wallets . Give Examples	5M	CO3	L3
b)	Explain the role of private and public keys in cryptocurrency wallets.	5M	CO3	L4
<u>UNIT-IV</u>				
7.	What is MetaMask and how do you create an account in it? Can you provide detailed flow diagram for the steps involved?	10M	CO4	L4
(OR)				
8.	Explain the role of private and public keys in cryptocurrency wallets. How do they ensure security and ownership?	10M	CO4	L3&L4
<u>UNIT-V</u>				
9.	Discuss the different Ethereum networks (Mainnet, Testnet, and Private networks) and their specific use cases.	10M	CO5	L3&L4
(OR)				
10.	Describe the steps involved in writing and compiling a Smart Contract in Solidity using Remix IDE .	10M	CO5	L2&L3
<u>UNIT-VI</u>				
11.	Write short notes on: i) Chaincode ii) Ordering Service in Hyperledger Fabric.	10M	CO6	L3&L4
(OR)				
12.	Describe the architecture of Hyperledger Fabric with a neat labelled diagram.	10M	CO6	L2&L3