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(FOR THE CANDIDATES ADMITTED

19UCF6E5

DURING THE ACADEMIC YEAR 2019 ONLY)

REG.NO.

N.G.M.COLLEGE (AUTONOMOUS): POLLACHI

END-OF-SEMESTER EXAMINATIONS: JULY 2022

B.COM. FINANCE

MAXIMUM MARKS: 75

SEMESTER: VI

TIME: 3 HOURS

PART - III

QUANTITATIVE TECHNIQUES FOR FINANCE

SECTION - A

(10 X 1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS.

MULTIPLE CHOICE QUESTIONS.

1. The objective function of a linear programming problem is _____.
(a) A Constraint (b) Function to be optimized
(c) A Relation between the variables (d) None of These
2. For finding an initial feasible solution in transportation problem _____ method is used.
(a) Simplex (b) Big M
(c) Least Cost Method (d) Hungarian
3. In PERT chart, the activity time distribution is _____.
(a) Normal (b) Binominal (c) Poisson (d) Beta
4. The time period between placing an order and its receipt in stock is known as _____.
(a) Lead Time (b) Carrying Time (c) Shortage Time (d) Over time
5. _____ of a system is the operation of a model in terms of time or space, which helps to analyze the performance of an existing or a proposed system.
(a) Modelling (b) Control Systems (c) Simulation (d) Radar

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES (K2)

6. Briefly explain Quantitative Technique
7. Describe Assignment model
8. Explain PERT.
9. What is Economic Order Quantity?
10. What do you mean by Simulation?

SECTION – B

(5 X 5 = 25 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS. (K3)

11. a) Explain Deterministic and Probabilistic Models

(OR)

b) Three nutrient components namely, thiamine, phosphorus and iron are found in a diet of two food items A and B. The amount of each nutrient (in milligrams per ounce i.e. mg/oz) is given below:

(CONTD...2)

	A	B
Thiamine	0.15 mg/oz	0.10 mg/oz
Phosphorus	0.75 mg/oz	1.70 mg/oz
Iron	1.30 mg/oz	1.10 mg/oz

The cost of food A and B are Rs. 2 per oz. and Rs. 1.70 per oz. respectively. The minimum daily requirements of these nutrients are at least 1.00 mg. of thiamine, 7.50 mg of phosphorus and 10.00 mg of iron. Write the problem in the linear programming form

12. a) Differentiate between transport and assignment model

(OR)

b) A travelling salesman, named Rolling Stone plans to visit five cities 1, 2, 3, 4 & 5. The travel time (in hours) between these cities is shown below:

	To				
From	1	2	3	4	5
1	∞	5	8	4	5
2	5	∞	7	4	5
3	8	7	∞	8	6
4	4	4	8	∞	8
5	5	5	6	8	∞

How should Mr. Rolling Stone schedule his touring plan in order to minimize the total travel time, if he visits each city once a week?

13. a) Differentiate between PERT and CPM

(OR)

b) If there are five activities P, Q, R, S and T such that P, Q, R have no immediate predecessors but S and T have immediate predecessors P, Q, R respectively. Represent this situation by a network

14. a) The annual requirement of material in a factory is 5000 units. The interest and carrying cost is 10% of the cost of material. Cost per unit is Rs. 20. Cost of placing an order is Rs.50. Find out the Economic Order Quantity.

(OR)

b) Discuss the various types of inventory.

15. a) Explain the various types of Simulation.

(OR)

b) A distributor of a certain product incurs holding cost of Rs.100 per unit per week and shortage cost of Rs.300 per unit. The data on the sales of the product are given below:

Weekly Sales (Units)	0	1	2	3	4	5	6	7	8
No. of Weeks Frequency	0	0	5	10	15	15	5	0	0

(CONTD...3)

SECTION - C

(4 X 10 = 40 MARKS)

ANSWER ANY FOUR OUT OF SIX QUESTIONS**(16th QUESTION IS COMPULSORY AND ANSWER ANY THREE****QUESTIONS (FROM Qn. No : 17 to 21)****(K4 (Or) K5)**

16. A person wants to decide the constituents of a diet which will fulfill his daily requirements of proteins, fats and carbohydrates at the minimum cost. The choice is to be made from 4 different types of foods. The yields per unit of these foods are given in the following table.

Food Type	Yield/unit			Cost / unit (Rs)
	Proteins	Fats	Carbohydrates	
1	3	2	6	45
2	4	2	4	40
3	8	7	7	85
4	6	5	4	65
Minimum Requirement	800	200	700	

Formulate the LPP model for this problem

17. Determine basic feasible solution to the following transportation problems using North West Corner Rule:

		Sink					Supply
		A	B	C	D	E	
Origin	P	2	11	10	3	7	4
	Q	1	4	7	2	1	8
	R	3	9	4	8	12	9
Demand		3	3	4	5	6	

18. The following table indicates the details of a project. The duration are in days., „a“ refers to optimistic time, „m“ refers to most likely time and „b“ refers to pessimistic time duration.

Activity	1 – 2	1 – 3	1 – 4	2 – 4	2 – 5	3 – 5	4 – 5
<i>a</i>	2	3	4	8	6	2	2
<i>m</i>	4	4	5	9	8	3	5
<i>b</i>	5	6	6	11	12	4	7

- Draw the network
- Find the critical path
- Determine the expected standard deviation of the completion time

19. A certain item costs Rs. 235 per ton. The monthly requirements are 5 tons, and each time the stock is replenished, there is a setup cost of Rs. 1000. The cost of carrying inventory has been estimated at 10% of the average inventory per year. What is the optimum order quantity.

(CONTD...4)

20. A Bakery store keeps stock of a popular brand of cake. The daily demand based on the past experience is given below.

Daily Demand	0	15	25	35	45	55
Probability	0.01	0.15	0.20	0.50	0.12	0.02

Using the following random numbers, 48, 78, 09, 51, 56, 77, 15, 14, 68, 09 simulate the demand for the next 10 days. Find out the stock situation if the owner of the bakery decides to make 35 cakes every day. Also estimate the daily average demand for the cakes on the basis of simulated data.

21. Find the initial basic feasible solution for the following transportation problem by Least Cost Method.

		To				Supply
From		1	2	1	4	30
		3	3	2	1	50
		4	2	5	9	20
Demand		20	40	30	10	
