(NO. OF PAGES: 4)

(FOR THE CANDIDATES ADMITTED DURING THE ACADEMIC YEAR 2020 ONLY) **20 UCF 6E5**

REG.NO. :

N.G.M.COLLEGE (AUTONOMOUS): POLLACHI
END-OF-SEMESTER EXAMINATIONS: MAY 2023

B.Com.- FINANCE **MAXIMUM MARKS: 70**
VI SEMESTER **TIME: 3 HOURS**

PART - III

QUANTITATIVE TECHNIQUES FOR FINANCE

SECTION - A (10 X 1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS.
MULTIPLE CHOICE QUESTIONS. (K1)

1. Operation research approach is _____
   a) Multi-disciplinary b) Artificial c) Intuitive d) All of the above

2. The initial solution of a transportation problem can be obtained by applying any known method. However, the only condition is that _____
   a) The solution be optimal b) The rim condition are satisfied
   c) The solution not be degenerate d) All of the above

3. PERT analysis computes the variance of the total project completion time as _____
   a) The sum of the variances of all activities in the project
   b) The sum of the variances of all activities not on the critical path
   c) The variance of the final activity of the project
   d) None of the above

4. The following classes of costs are usually involved in inventory decisions except _____
   a) Cost of ordering b) Carrying cost c) Cost of shortages d) Machining cost

5. The first step in the Monte Carlo simulation process is to
   a) Generate random numbers b) Set up cumulative probability distributions
   c) Establish random number intervals d) Simulate trials

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

6. What is Quantitative technique?
7. Explain Assignment model.
8. What is dummy activity?
9. What is economic order quantity?
10. Define strategy?.

SECTION – B (5 X 4 = 20 MARKS)

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

11. a) Discuss the methodology of Quantitative techniques. **(OR)**

(CONTD …. 2)

b) XYZ furniture firm manufactures tables and chairs. Data given below shows the resources consumed and unit profit in manufacturing a table and a chair. Here it is assumed that wood and labour are the only two resources which are consumed in manufacturing furniture. The manager of the firm wishes to determine how many tables and chairs should be made to maximize the total profit. Formulate the problem as a linear programming problem.

Requirement per unit:

	Wood	Labour	Profit
Table	3	50	6
Chair	20	10	8
Total availability	300	110	

12. a) A company has factories at F1, F2 and F3 which supply warehouses at W1, W2 and W3. Weekly factory capacities are 200, 160, and 90 units respectively. Weekly Factory capacities are 180, 120, and 150 units respectively. Unit shipping costs are as follows:

Warehouse					
Factory		W1	W2	W3	Supply
	F1	16	20	12	200
	F2	14	8	18	160
	F3	26	24	16	90
	Demand	180	120	150	350

Determine the optimum distribution for this company to minimize shipping costs.

(OR)

b) A company has three factories at Amethi, Baghpat and Gwalior: and four distribution centres at Allahabad, Bombay, Calcutta and Delhi. With identical cost of production at the three factories the only variable cost involved is transportation cost. The production at the three factories is 5,000 tonnes: 6,000 tonnes and 2500 tonnes respectively. The demand at four distribution centres is 6000 tonnes: 4000 tonnes: 2000 tonnes and 1500 tonnes respectively. The transportation costs per tone from different factories to different centres are given below:

Distribution centre				
Factory	Alahabad	Bombay	Calcutta	Delhi
Amethi	3	2	7	6
Baghpat	7	5	2	3
Gwalior	2	5	4	5

Suggest the optimum transportation schedule and find the minimum cost of transportation under MODI's method.

13. a) Given the following table, draw a network.

Beginning Event	Ending Event	Activity
1	2	1-2
1	3	1-3
2	4	2-4
3	4	3-4
3	5	3-5
4	6	4-6
5	6	5-6

(OR)

(CONTD …. 3)

b) Mention the steps involved in PERT.

14. a) Find the EOQ for the following data:
Annual usage – 1000 pieces
Cost per piece – Rs. 250
Ordering cost – Rs. 6 per order
Expediting cost – Rs. 4 per order
Inventory holding cost – 20% of average inventory
Material holding Cost – Re. 1 per piece

(OR)

b) Explain the types of Inventory.

15. a) Write down the general procedure of Monte Carlo Method.

(OR)

b) Briefly explain the methodology used in simulation.

SECTION - C (4 X 10 = 40 MARKS)

ANSWER ANY FOUR OUT OF SIX QUESTIONS
(16th QUESTION IS COMPULSORY AND ANSWER ANY THREE (K4 (Or) K5)

16. A company sells two different products A and B. The selling price and incremental cost information are as follows:

	Product A	Product B
Selling price	60	40
Variable price	30	10

The two products are produced in a common production process and are sold in two different markets. The production process has a capacity of 30,000 man hours. It takes three hours to produce a unit of A and one hour to produce a unit of B. The market has been surveyed and the company officials feel that the maximum number of units of A that can be sold is 6,000 and maximum for B is 12,000 units. Subject to these limitations two products can be sold in any combination. Formulate the problem as LP model and solve to maximize contribution (Use simplex method).

17. A firm makes two types of furniture chairs and tables. The contribution for each product as calculated by the accounting department is Rs. 20 per chair and Rs. 30 per table. Both products are processed on three machines M_1, M_2 and M_3. The time required (in hours) by each product and total time available per week on each machine are as follows:

Machine	Chair	Table	Available hours per week
M_1	3	3	36
M_2	5	2	50
M_3	2	6	60

How should the manufacturer schedule his production in order to maximize contribution? Formulate the problem as a Linear Programming Problem.

(CONTD …. 4)

18. Determine an initial basic feasible solution to the following transportation problem using a) North West corner rule, b) Vogel's method

		Destination				
		E	E	F	G	Supply
	A	11	13	17	14	250
Supply	B	16	18	14	10	300
	C	21	24	13	10	400
Demand		200	225	275	250	

19. A project schedule has the following characteristics:

Activity	Time	Activity	Time
1-2	4	5-6	4
1-3	1	5-7	8
2-4	1	6-8	1
3-4	1	7-8	2
3-5	6	8-10	5
4-9	5	9-10	7

Construct a network diagram.

20. A manufacturer uses Rs. 10,000 worth of an item during the year. He has estimated the ordering costs as Rs. 25 per order and carrying cost as 12.5% of average inventory value.

Find the optimum order size, number of orders per year, time period per order and total cost.

21. Enumerate the advantages and disadvantages of Simulation.

****