

M.Com. (New CBCS Pattern) Semester - I
PCC1E10 - Operation Research

P. Pages : 2

Time : Three Hours



GUG/S/23/14311

Max. Marks : 80

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1. A) Write down the Meaning, Features and limitation of Operation Research. 16

OR

- B) Novelty Ltd. Carries a wide assortment of items for customers. One item, Gaylook is very popular. Desirous of keeping its inventory under control, a decision is taken to order only the optional economic quantity, for this item, each time. You have the following information. 16

Annual demand	160000
Price Per Unit	Rs. 20
Carrying Cost	Rs. 1 per unit or 5% rupee of inventory value
Cost Per order	Rs. 50

Compute from the above :

- i) Economic order quantity.
- ii) Optimum number of orders.
- iii) Time between two consecutive order
- iv) The optimum Cost

2. A) Describe the meaning and feature of Transportation. 16

OR

- B) Obtain initial feasible solution for the following Transportation table using 16
- i) North West Corner rule.
 - ii) Least Cost Method.
 - iii) VAM Method.

	W ₁	W ₂	W ₃	W ₄	Supply
A	13	25	12	21	18
B	18	23	14	9	27
C	23	15	12	6	21
Demand	14	12	23	17	66

3. A) Write done Meaning and Definition of Assignment Model. Distinguish between Assignment and transportation. 16

OR

- B) A city Corporation had decided to carry out road repairs on four main road of the city. Government has agreed to make a special grant of 50/- lakhs towards the cost with a condition that the repairs must be done at the lowest cost and quickest time. If conditions warrant, then a supplementary token grand will be considered favourable. The corporation has floated tenders and 5 contractor have send in their bids. In Order to expedite work, one road will be awarded to only one contractor. **16**

Road / Contractor	R1	R2	R3	R4
C1	9	14	19	15
C2	7	17	20	19
C3	9	18	21	18
C4	10	12	18	19
C5	10	15	21	16

- Find the best way of assigning the repair work to the contractors and the costs.
- If it is necessary to seek supplementary grands, then what should be the amount sought?
- Which of the five contractors will be unsuccessful in hid bid?

4. A) Explain Introduction of Sequencing and write the Assumptions in sequencing problem. **16**

OR

- B) A Machine owner finds from his past records that cost per year of Maintaining a machine different and which are given below. **16**

Year	1	2	3	4	5	6	7	8
Maintenance cost	1000	1200	1400	1800	2300	2800	3400	4000
Resale Price	3000	1500	750	375	200	200	200	200

If the purchase price of that machine is Rs. 600, then at what age the replace is due.

5. Write short notes. **16**

- Inventory Model.
- Column Minima Method.
- Definition of Assignment.
- Introduction of Sequencing.
