



MAU-010-001610

Seat No. _____

B. B. A. (Sem VI) (CBCS) Examination

March / April - 2018

610 : Operation Research - II

(New Course)

Faculty Code : 010

Subject Code : 001610

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

- Instructions :** (1) Attempt all five questions.
(2) Each question carries equal marks.

- 1 (a) What is group replacement policy ? **7**
(b) Explain : Types of replacement situations. **7**

OR

- 1 The maintenance cost and resale value per year of a machine whose purchase price is Rs. 7,000 is given below. **14**
When should the machine be replaced ?

Year	1	2	3	4	5	6	7	8
Maintenance Cost	900	1200	1600	2100	2800	3700	4700	5900
Resale Value (Rs.)	4000	2000	1200	600	500	400	400	400

- 2 (a) Explain : ABC system of inventory control. **7**
(b) What are the various functions of inventory control ? **7**

OR

- 2 A manufacturer has to supply his customers 600 units of his product per year. Shortages are not allowed and the inventory carrying cost amount to be Rs. 0.60 per unit year. The set up cost per run is Rs. 0.80. Find. **14**
(1) The economic order quantity.
(2) The min. average yearly cost.
(3) The optimal number of orders per year.
(4) The optimal period of supply per optimal order.

- 3 (a) Give Johnson's procedure for determining and optimal sequence for processing n-jobs in 2-machines. 7
- (b) Give 3 different examples of sequencing problems from your daily life. 7

OR

- 3 Determine the optimal sequence of jobs that minimizes the total elapsed time based on the following information. The processing time on machine is given in hours and passing is not allowed. Also calculate idle time on each machine. 14

Machine	Job	J ₁	J ₂	J ₃	J ₄	J ₅	J ₆	J ₇
	A	3	8	7	4	9	8	7
	B	4	3	2	5	1	4	3
	C	6	7	5	11	5	6	12

- 4 (a) Give difference between PERT and CPM. 7
- (b) How network diagram representation done ? 7

OR

- 4 Draw network diagram of the following activities and find critical path, also calculate total float, free float for each activity. 14

Activity	A	B	C	D	E	F	G	H	I	J	K
Immediate Predecessor	-	A	B	C	D	E	F&D	F	H	G&I	J
Time (in days)	13	8	10	9	11	10	8	6	7	14	18

- 5 Write notes on : (any two) 14
- (1) Characteristics of O.R.
 - (2) Scope of OR in different areas
 - (3) Different types of models in OR
 - (4) Important techniques of OR.