



RAF-010-001610

Seat No. _____

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

March - 2019

Operation Research - 2 : Paper - 610

(Old 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.
- (3) Figures to the right indicate marks.

- 1 (a) Explain the methodology of O.R. 7
- (b) Explain : Different phases of O.R. 7

OR

- 1 (a) Explain : Important techniques of O.R. 7
- (b) Explain : Growth of O.R. in different sectors. 7

- 2 (a) Explain : Float of an activity. 7
- (b) Explain : PERT. 7

OR

- 2 A small project consisting of 8 activities has the following characteristics : 14

Activity	Proceeding Activity	Time estimates (in weeks)		
		t_o	t_m	t_p
A	-	2	4	12
B	-	10	12	26
C	A	8	9	10
D	A	10	15	20
E	A	7	7.5	11
F	B, C	9	9	9
G	D	3	3.5	7
H	E,F,G	5	5	5

- (1) Draw the PERT network for the project.
- (2) Determine the critical path.

- 3 (a) What is a sequencing problem ? What are the assumptions of sequential problem ? 7
- (b) Give the various sequencing models that are available for solving the sequencing problems. 7
- Give suitable examples.

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

	Job	J ₁	J ₂	J ₃	J ₄	J ₅	J ₆	J ₇
Machine	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) Explain : Replacement problem. 7
- (b) What is group replacement policy ? 7

OR

- 4 The following table gives the running cost per year and resale values of a certain equipment whose purchase price is Rs. 65,000. At what year is the replacement due optimally ? Also find average yearly cost. 14

Year	1	2	3	4	5	6	7	8
Running Cost (Rs.)	14000	15000	17000	20000	24000	28000	33000	39000
Resale Value (Rs.)	40000	30000	22000	17000	13000	10000	10000	10000

- 5 (a) Explain : Benefits of Inventory Management. 7
- (b) Explain : The Economic Order Quantity. 7

OR

- 5 A retail store has a domestic item with annual demand 2500 units. Set up cost is Rs. 40.50 per order, the unit cost is Rs. 160 and there is 10% inventory carrying charge for the item. 14

Find

- (1) EOQ
- (2) No. of order per year.
- (3) Time between two consecutive order
- (4) Minimum total cost.