Bachelor of Business Administration 3rd Semester

(2123)

OPERATION RESEARCH

Paper : BBA-202

Time Allowed : Three Hours]   [Maximum Marks : 80

Note :—(1)   Attempt any **FOUR** questions from Section A. Each question carries **5** marks.

(2)   Attempt any **TWO** questions from Section B. Each question carries **15** marks.

(3)   Attempt any **TWO** questions from Section C. Each question carries **15** marks.

SECTION—A

1.   Define Operations Research.

2.   Differentiate PERT and CPM.

3.   Find the initial feasible solution of the following transportation problem by Vogel's Approximation Method :

| Destination | | | | | |
Source	D1	D2	D3	D4	Availability
A	19	30	50	12	7
B	70	30	40	60	10
C	40	10	60	20	18
Requirement	5	8	7	15	

even if he works for a fraction of an hour. Find the least cost allocation for the following data :

Typist	Rate per hour (Rs.)	No. of Pages typed/hour	Job	No. of Pages
A	5	12	P	199
B	6	14	Q	175
C	3	8	R	145
D	4	10	S	298
E	4	11	T	178

SECTION—C

11. Reduce the following game by Dominance Method and find the value of game and optimum strategies :

		Player B			
		I	II	III	IV
Player A	I	2	−2	4	1
	II	6	1	12	3
	III	−3	2	0	6
	IV	2	−3	7	1

12. Time requirement for the various activities of a project is as follow :

Activity	Job	Duration (days)		
		Optimistic	Most likely	Pessimistic
A	1—2	6	6	24
B	1—3	6	12	18
C	1–4	12	12	30
D	2–5	6	6	6
E	3—5	12	30	48
F	4—6	12	30	42
G	5–6	18	30	54

You are required to find :

(i) Draw the network diagram and find critical path.

(ii) Expected duration and variance of each activity.

(iii) Expected project length.

(iv) Variance and standard deviation of project length.

13. What is sequencing problem ? Explain its assumptions. Explain the method of processing 'n jobs' through two machines.

14. Write notes on the following :—

(a) Explain the term 'Crashing' along with its importance under PERT & CPM.

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(b) Describe some applications of game theory. What are its limitations ?

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