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QUESTION BANK

MBA- II SEM

204 – OPERATIONS RESEARCH

Note : Question of 1.5 Marks.

Q.1 What is game theory? What are the properties of a game?

Q.2 What is sequencing problem? Give its essential characteristics.

Q.3 What are the assumption underlying common queuing models?

Q.4 What are the assumptions of replacement models

Note : Questions of 2 Marks.

Q.1 Solve the game whose pay off matrix is

		B		
		I	II	III
A	I	-3	-2	6
	II	3	0	2
	III	5	-2	-4

Q.2 Solve the following game by odds method.

		Player B	
		B_1	B_2
Player A	A_1	1	5
	A_2	4	2

Q.3 Differentiate between PERT & CPM

Note : Questions of 3 marks.

Q.1 A researcher gives the following information regarding activities and sequencing requirement along with expected time for various activities related to his thesis.

Activities	A	B	C	D	E	F	G	H	I	J	K	L	M
Prerequisites activities	_	_	B	C	A,D	D	A,D	E	G,H	I	G	J,K	L
Expected time	6	5	2	2	2	1	6	5	6	2	4	3	1

(i) Draw the network diagram and trace Critical path

(ii) What is the minimum time to complete the thesis?

Q.2 Solve the following games

		Player Q			
		I	II	III	IV
Player P	I	6	4	8	0
	II	6	8	4	8
	III	8	4	8	0
	IV	0	8	0	16

Q.3 Solve the following game graphically.

		Player B				
		1	2	3	4	5
Player A	I	-5	5	0	-1	8
	II	8	-4	-1	6	-5

Q.4 The following table shows the operating costs per year and resale prices of certain machine whose purchase price is Rs 6,000.

year	1	2	3	4	5	6	7
operating cost(Rs)	1000	1200	1400	1800	2300	2800	3400
Resale value (Rs)	3000	1500	750	375	200	200	200

Determine the year of replacement

Q.5 Eight jobs are to be processed through two machines each day with no passing allowed between machines. The processing times are as follows:

Job	1	2	3	4	5	6	7	8
Time in machine I	4	8	7	8	2	1	3	9
Time in machine II	6	3	6	4	6	5	7	2

Q.6 An airline organization has one reservation clerk on duty in its local branch at any given time. The clerk handles information regarding passenger reservation and flight timings assuming that the no. of the customers arriving during any given period in poisson distribution with an arrival rate of eight per hour and that the reservation clerk can service a customer in six minutes on an average, with an exponentially distributed service time.

(1) What is the probability that the system is busy?

(2) What is the average time a customer spends in the system?

(3) What is the average length of the queue and what is the no. of customers in the system

Q.7 Customers arrive at the first class ticket counter of a theater at a rate of 12 per hour. There is one clerk service the customer at rate of 30 per hour.

(1) What is the probability that there is no customer in counter.

(2) what is the probability that there are more then 2 customers in the counter.

(3) What is the probability that there is no customer waiting to be served.

(4) What is the probability that a customer is being served and nobody is waiting.

Q.8 Give the role of queuing theory in decision making and discuss its application.

DILEEP JAIN