

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION MAY 2019
(Sixth Semester)

Branch – STATISTICS

CORE ELECTIVE – II: OPERATIONS RESEARCH – II

Time : Three Hours

Maximum : 75 Marks

SECTION-A (20 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (10 x 2 = 20)

- 1 Define Two person zero sum game.
- 2 What is Saddle Point?
- 3 What is a replacement problem?
- 4 What are the two types of replacement policies?
- 5 Define Simulation.
- 6 What are the four categories of Simulation models?
- 7 List out the operational characteristics of a Queuing System.
- 8 Define Transient State.
- 9 When do you need to introduce a dummy activity into your PERT network?
- 10 Define Total Float.

SECTION - B (25 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 5 = 25)

- 11 a Solve the game whose payoff matrix is given by

		Player B		
		B ₁	B ₂	B ₃
Player A	A ₁	1	3	1
	A ₂	0	-4	-3
	A ₃	1	5	-1

OR

- b For the game with the following payoff matrix, determine the optimum strategies and the value of the game:

		P ₂
		5 1
P ₁	3	4

- 12 a Explain Replacement Policy when value of Money does not change with time.

OR

- b A Pipeline is due for repairs. It will cost Rs.10,000 and last for 3 years. Alternatively, a new pipeline can be laid at a cost of Rs.30,000 and lasts for 10 years. Assuming cost of capital to be 10% and ignoring salvage value, which alternative should be chosen?

- 13 a Customers arrive at a milk booth for the required service. Assume that inter arrival and service times are constant and given by 1.8 and 4 time units, respectively. Simulate the system by hand computations for 14 time units. What is the average waiting time per customer? What is the percentage idle time of the facility? [Assume that the system starts at t=0].

OR

- b Explain the steps involved in Monte-Carlo simulation.