MB-105

Sl.No. : **Total No. of Pages : 3**

I Semester M.B.A. Degree Examination, May/June - 2023
(Non-CBCS, SLM Scheme)
MANAGEMENT
Statistics and Optimization Techniques

Time : 3 Hours **Max. Marks : 80**

SECTION - A

Q1) Answer any five sub-questions. Each sub-question carries three marks. **[5×3=15]**

a) Explain when the dummy activity is used in the construction of network.

b) Distinguish between skewness and dispersion.

c) What is regression analysis?

d) Define continuous probability distribution.

e) List the properties of Karl Pearson's Coefficient of Correlation.

f) What is inventory control?

g) State queuing theorem.

SECTION - B

Answer any four questions. Each question carries five marks. **[4×5=20]**

Q2) Find standard deviation and variance from the following data.

C.I	0-6	6-12	12-18	18-24	24-30	30-36	36-42
f	19	25	36	72	51	43	28

Q3) Solve the following game. The payoff is for player A.

		B			
A		B1	B2	B3	B4
	A1	25	27	35	-2
	A2	20	6	8	8
	A3	14	12	5	3

Q4) Two cards are selected from well shuffled pack of 52 cards. What is probability, that one card is a king and other is queen?

Q5) Explain the application of inferential statistics in managerial decision making.

Q6) Compute regression equation Y on X from the following data.

X	2	4	5	6	8	11
Y	18	12	10	8	7	5

Q7) Distinguish between correlation and regression analysis.

SECTION - C

Answer any three questions. Each question carries Ten marks. **[3×10=30]**

Q8) Calculate Karl Pearson's Coefficient of Skewness from the following data.

CI	70-80	60-70	50-60	40-50	30-40	20-30	10-20	0-10
F	11	12	30	35	21	11	6	5

Q9) a) Contents of two boxes are as follows:

I Box : 2 White and 4 black marbles

II Box : 3 White and 5 black marbles

One of the marble is selected from the 1 bag and transferred to the II bag. Then a marble is selected from the II bag. What is the probability that is White in color?

b) A random variable assumes the values -1, 0 and 1 with probabilities 0.2, 0.7 and 0.1 respectively. Find E (2X).

Q10) Briefly explain the various criteria used for decision making under operation research.

Q11) Briefly explain the methods of correlation analysis.

Q12) Find the median and mode of the following distribution.

CI	200-400	400-600	600-800	800-1000	1000-1200	1200-1400
F	6	9	15	10	7	3

SECTION - D

Q13) Case (Compulsory) : **[1×15=15]**

A Project schedule has the following characteristics.

Activity	Normal		Cash	
	Time (Weeks)	Costs (Rs.)	Time (Weeks)	Costs (Rs.)
1-2	6	1,400	4	1,900
1-3	8	2,000	5	2,800
2-3	4	1,100	2	1,500
2-4	3	800	2	1,400
3-5	6	900	3	1,600
4-6	10	2,500	6	3,500
5-6	3	500	2	800

The indirect cost per day is Rs. 300.

a) Draw the network and the critical path.

b) What are the normal project duration associate cost? And determine the optimum project completion.

