MB-105

Sl.No. :

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First Semester M.B.A. Degree Examination, May - 2025
(SLM Scheme) (Non CBCS)
MANAGEMENT
Statistics and Optimization Techniques

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

Instruction : Answer all the sections.

SECTION - A

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

a) What is standard deviation? Give the formula to calculate standard deviation.

b) Distinguish between sample and census.

c) What are the measures of central tendency?

d) List different queuing models.

e) What is a zero sum game?

f) Name the three types of time estimates in PERT.

g) What is purchase cost and carry my cost?

SECTION - B

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

Q2) Explain the different methods of collecting primary data.

Q3) Discuss the properties of normal distribution and normal curve.

Q4) Discuss the models in operation research.

Q5) Customers arrive at a booking office window being manner by a single individual at a rate of 25 per hour, Time required to serve a customer has exponential distribution with a mean of 120 seconds. Find the mean waiting time of a customer in the queue.

Q6) Represent the following data by histogram

Income in Hundreds	No. of families
200-300	27
300-400	30
400-500	45
500-600	25
600-700	18

Q7) From a well shuffled pack of cards, a card is drawn at random. Find the probability that the word drawn is

i) An ace

ii) a heart

iii) King of heart

SECTION - C

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

Q8) From the following frequency distribution obtain mean, median and mode.

CI	30-50	50-70	70-90	90-110	110-130	130-150
Freq	8	15	25	16	7	4

Q9) Find the regression equation for the following data and hence estimate y when x = 15 and x when Y = 18

x	10	12	14	19	8	11	17
y	20	24	25	21	16	22	20

Q10) Discuss the applications of Game theory in business. highlighting its application.

Q11) Under on employment promotion programme it is proposer to allow sales of newspapers on the buses during off-peak hours. The vendor come purchase the news paper at a special discounter rate of 25 paise per copy against the selling price of 40 paise, Any unsold copies are however a dead loss, A vendor has estimated the following probability distribution for the number of copies demands.

No. of copies	15	16	17	18	19	20
Probability	0.04	0.19	0.33	0.26	0.11	0.07

Q12) Differentiate between binomial distribution and normal distribution. Highlight pier applications.

SECTION - D

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

Draw a network for the below mentioned activities and find out critical path and various Slack times.

Activity	Optimisitic Time	Pessimistic Time	Most Likely Time
1-2	5	12	7
1-3	12	17	13
2-4	15	21	18
3-4	2	5	3
2-5	8	14	10
4-5	21	35	26

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