Duration: 3 Hrs.   **Marks: 100**

Note: 1. All questions are compulsory.
      2. Figures to the right indicate full mark.
      3. Graph papers will be provided on request.
      4. Use of simple non-programmable calculator is allowed

SECTION I

Q.1 Attempt any FOUR from the following: **20**

1. Sunita invested Rs.60,180 in ICICI Mutual Fund when NAV was Rs.236. She sold all the units when the NAV touched Rs.320. If the entry load is 20% and there is no exit load, find her gain in the transaction.

2. A company shares were bought at the market price of Rs.780 per share and within a week they were sold at the price of Rs.840 each. If the brokerage is 0.5% and the net gain during this deal was Rs.519, find the number of shares bought during this trade.

3. Aditya bought 30 shares of face value Rs.10 at the market price of Rs.25 each. If the company declared a dividend of 20% on the share, what will he get on the entire deal? Also calculate Rate of Return.

4. Calculate the gain when the 100 shares of face value Rs.2 , bought at Rs.250 per share are sold at the rate of Rs.275, after receiving the dividend of 230% from the company , the brokerage being 0.2% .

5. How many shares of market value Rs.800 were sold for the amount of Rs.39,840, the brokerage being 0.4% ?

Q.2 Attempt any FOUR from the following: **20**

1. How many different arrangements can be made of the letters of the word CENTRAL? How many of those begin with a consonant and end with a vowel?

2. A class has 6 girls and 5 boys. If 4 persons out of these are to be selected, find the total number of choices if:
   i) There is no restriction on the gender   ii) 3 boys and 1 girl to be selected.

3. From a pack of 52 cards two cards are to be selected at random. Find the number of selections if: **i)** exactly one card is a king   **ii)** One card is King and other is Queen.

4. Solve the LPP Graphically:
   Max.z =5x+10y
   Subject to:
   5x+8y≤40
   3x+y≤12
   x≥0,y≥0

5. A factory manufactures two products A and B. To manufacture one unit of A, 1.5 machine hours and 2.5 labour hours are required. To manufacture product B, 2.5 machine hours and 1.5 labour hours are required. In a month, 300 machine hours and 240 labour hours are available. Profit per unit for A is Rs. 50 and for B is Rs. 40. Formulate as LPP.

SECTION-II

Q.3 **Attempt any FOUR from the following:**   **20**

1. Find the median for the data below:

C.I.	20-30	30-40	40-50	50-60	60-70	70-80
Frequency	15	10	25	30	10	10

2. Locate the mode graphically.

Height in cm	110-120	120-130	130-140	140-150	150-160	160-170
No. of Children	8	10	20	25	15	12

3. Calculate Q3 for the data below:

C.I	10-20	20-30	30-40	40-50	50-60
Frequency	15	20	40	20	5

4. 60 students of section A of Class XI, obtained 40 mean marks in statistics, 40 students of section B obtained 35 mean marks in statistics. Find out mean marks in Statistics for class XI as a whole.

5. From the following data find which company is having less variations in wages:

	Company A	Company B
No. of workers	500	600
Average wages	8000	9000
Variance	900	1600

Q.4 **Attempt any FOUR from the following:**   **20**

1. Define the following terms:
   i) Disjoint Events   ii)Exhaustive Events
2. Two unbiased dice are thrown. Find the probability that:
   i)   Number on first dice is an even no.
   ii)   Sum of number on the two dice is 7.
3. $P(A)=0.3$, $P(B) = 0.6$, $P(A \cup B)=0.8$, find $P(A \cap B)$
4. If
   $P(X) = 1/2$, x=1
         $= 1/3$,x=2
         $=1/4$,x=3
   State with reason, if $P(X)$ is a probability mass function.
5. Probability that A can win a race is 3/8 and the probability that B can win it is 1/6 . If both run in a race, find the probability that one of them will win a race, assuming that both cannot win together.

Q.5 **Attempt any FOUR from the following:** 20

1. Write a short note on Decision Tree.
2. Explian EOL and EMV.
3. Explain decision making under Uncertainty.
4. For the following pay-off table, find optimal decision using criterion:
   i)Maximin ii) Maximax iii) Laplace

	S1	S2	S3
A1	20	15	23
A2	25	10	30
A3	35	25	20

5. For the Pay off table below, find optimal decision using EMV criterion.

Stare of nature	Probability	A1	A2	A3
S1	0.1	25	-10	-125
S2	0.7	400	440	400
S3	0.2	650	740	750