

Please check whether you have got the right question paper.

- N.B:
1. All questions are compulsory.
 2. Figures to the right indicate full marks.
 3. Use of non-programmable simple calculator is allowed.
 4. Graph paper will be provided on demand of student.
 5. Both the sections written on same answer sheet.

SECTION I

Q.1 Attempt any four sub questions.

- (a) Ms. Chopra bought some Rs.10 shares that gave a 5% dividend but only a 4% rate of return on investment. Find the purchase price of a share. **5**
- (b) Mrs. Varma earned a dividend at 10% on her shares. A total dividend income of Rs.5000 was earned on money invested in Rs.100 shares at a 25% premium. Find the total investment and the rate of return. **5**
- (c) Mr. Anil sold some shares at a market price of Rs. 120 each and paid 0.10% brokerage. If he received a net amount of Rs. 47,952, find the number of shares sold. **5**
- (d) Mr. Raman invested Rs. 10000 in SIGMA Liquid Plan- Growth when the NAV was Rs. 1345.024 and redeemed all the units when the NAV was Rs.1874.715. What was the total gain? What was the rate of return? There were no loads. Number of units was rounded off to 3 decimal places. **5**
- (e) An investor has joined the SIP scheme of a mutual fund with no entry load. Four monthly installments of Rs. 5,000 have been paid when the NAV was Rs. 41.78, Rs. 53.45, Rs. 61.67 and Rs. 39.59 respectively. Find the Average Acquisition Cost per unit. The number of units was rounded off up to 2 decimal places. **5**

Q.2 Attempt any four sub questions.

- (a) In how many ways can 7 books on Accountancy, 5 books on Mathematics and 8 books on Commerce be arranged on a shelf in a row so that all the books of the same subject will always be together? **5**
- (b) An investment advisor has given Mr. Khurana, an investor, a list of 10 Gold Funds and 5 Index Funds to choose from. How many choices does Mr. Khanna **5**

have, if the advisor has advised him to invest (i) equally in 4 Gold funds and 3 Index funds (ii) equally in 3 Gold Funds or in 4 Index Funds?

- (c) Solve the following LPP by graphical method 5

Maximize $Z = 90x + 130y$ Subject to: $3x + 2y \leq 18$, $x + 2y \leq 10$, $x \geq 0$, $y \geq 0$

- (d) Solve the following LPP by graphical method 5

Minimize $Z = 200x + 300y$ Subject to: $2x + 2y \geq 10$, $x + 2y \geq 8$, $x \geq 0$, $y \geq 0$

- (e) “A painter makes two paintings A and B. He spends 2 hours for drawing and 3 hours for coloring the painting A and he spends 3 hours for drawing and 4 hour for coloring the painting B. He can spend at most 18 hours and 19 hours for drawing and coloring respectively. The profit per painting of Type A is Rs. 4000 and that of Type B is Rs. 5000.” Formulate as a LPP to maximize the profit. 5

SECTION II

Q.3 Attempt any four sub questions

- (a) State merits and demerits of arithmetic mean. 5
- (b) Find the Median wages for the following data. 5

Daily wages in Rs.	200-400	400-600	600-800	800-1000	1000-1200
No. of workers	130	150	200	170	150

- (c) Draw less than ogive and locate lower quartile (Q1) and upper quartile (Q3) for the following data 5

Marks	50-60	60-70	70-80	80-90	90-100
No. of students	130	150	200	170	150

- (d) Calculate Mean Deviation from mean for the following data. 5

Marks	0-10	10-20	20-30	30-40	40-50
No. of Students	15	30	40	10	5

- (e) Calculate the mean and standard deviation when group I and II are combined: 5

	Number of Observations	Arithmetic Mean	Variance
Group I	75	80	16
Group II	85	90	36

Q.4 Attempt any four sub questions

- (a) Two fair coins are tossed together. Find the probability of getting (i) one head (ii) two heads (iii) at least one head. 5

- (b) A ticket is drawn from 50 lottery tickets numbered from 1 to 50. Find the probability that the number on the ticket is divisible by 2 or 5. 5

- (c) A financial analyst has estimated that the probability that market price of share of company T will double in the next month is 0.35 and the same probability for share of company R is 0.25. Going by her estimates and assuming independence, find the probability that in the next month, the market price of 5

i) both share T and share R doubles ii) only share R doubles

- (d) Explain the following: 5

Random Variable, probability distribution of a discrete Random Variable

- (e) Find $E(X)$ and $V(X)$ for the following probability mass function of a Random Variable X. 5

X	2	4	5	6
P(X=x)	0.2	0.3	0.4	0.1

Q.5 Attempt any four sub questions

- (a) Explain the following terms: 5

(i) States of Nature (ii) Payoff Table

- (b) A businessman wishes to produce and sell one of 3 types of toys. From the following pay-off table, decide on the type to be produced and sell, using Minimax Regret criterion. 5

Demand	Type of Toy		
	Type 1	Type 2	Type 3
Low	200	160	120
Moderate	210	220	150
High	230	240	300

- (c) From the following pay-off table, decide on the best investment alternative for an entrepreneur by calculating Expected Monetary Values (EMV) 5

Demand	Probability	Investment Alternative		
		Mall	Theatre	College
Low	0.1	35	40	45
Medium	0.5	45	50	50
High	0.4	55	55	60

- (d) Draw the decision tree and obtain the optimum investment alternative from the following payoff table. 5

State of Economy	Probability	Investment Alternative		
		A1	A2	A3
S1	0.2	30	40	50
S2	0.5	40	50	60
S3	0.3	60	40	50

- (e) From following pay off table, decide on the number of sweaters should be kept in stock, by calculating Expected Opportunity Loss (EOL). 5

State of the Winter Season	Probability	Number of sweaters in stock		
		1000	1500	2000
Light	0.1	300	270	240
Medium	0.6	300	340	340
Severe	0.3	350	400	500
