

- N.B.**
1. All questions are compulsory
 2. Figures to the right indicate marks allotted
 3. Graph papers will be provided on request
 4. Use of simple non-programmable calculator is allowed

SECTION-I

Q.1 Attempt any 4 from the following:

- a) Find the face value of a share if an investment of Rs. 9,00,000 put in to purchase 8% shares quoted at Rs. 15 each, earned a total dividend of Rs. 9600. (5)
- b) Mr. Chopra bought 400 shares of par value Rs. 10 each at the market price of Rs. 24 each. If the annual dividend distributed was at the rate of 12%, find Mr. Chopra's total dividend and rate of return on investment. (5)
- c) Ram invested Rs 18,000 in a mutual fund scheme with entry load of 2.25% at NAV Rs 110. How many units did he purchase? The current NAV is Rs 130. Find the current value of his investment. (5)
- d) Katrina invested Rs. 15,000 on 5th of every month for 5 months in a SIP of a mutual fund. The N.A.V.s on these dates were Rs. 42.26, Rs. 40.25, Rs. 49.57, Rs. 51.45 and Rs, 39.32 respectively. There was same entry load of 2.3% for all these months. Find the average acquisition cost per unit. (5)
- e) Mr. Bhavesh invested Rs. 50000/- in the purchase of Mutual fund units at NAV Rs. 16.50/-. Calculate the number of units purchased when the entry load of 1.2% was applied. How many more units he could have purchased if the scheme was load free? (5)

Q.2 Attempt any 4 from the following:

- a) In how many different ways can the letters of the word 'LEADING' be arranged such that the vowels should always come together? (5)
- b) A committee of 5 persons is to be formed from 6 doctors and 5 nurses .Find the total number of ways if committee consist of i) All doctors. ii) 3 doctors and 2 nurses. (5)
- c) Solve the following L.P.P. by graphical method.
Maximize $Z = 4x + 5y$
Subject to, $2x + 3y \leq 12$;
 $x + y \leq 5$; $x \geq 0, y \geq 0$ (5)
- d) Solve the following L.P.P. Graphically: (5)
Minimize $Z = 9x + 10y$,
subject to, $x + 2y \geq 30$,
 $3x + y \geq 30, x \geq 0, y \geq 0$

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- e) A printing company prints two types of magazines A and B. The company earns Rs. 25 and Rs. 35 on each copy of magazines A and B respectively. The magazines are processed on three machines. Magazine A requires 2 hours on machine I, 4 hours on machine II and 2 hours on machine III. Magazine B requires 3 hours on machine I, 5 hours on machine II and 3 hours on machine III. Machines I, II, and III are available for 35, 50, and 70 hours per week respectively. Formulate the L.P.P. so as to maximize the total profit of the company. (5)

SECTION-II

Q.3 Attempt any 4 from the following:

- a) Explain the measure of central tendency. State the requisites of good average. (5)
- b) Draw a less than cumulative frequency curve for the following data and locate median and two quartiles graphically. (5)

Daily Wages	0-100	100-200	200-300	300-400	400-500	500-600
No. of workers	10	30	45	60	35	20

- c) Find mean and mode from the following data. (5)

Age in years	0-20	20-40	40-60	60-80	80-100
No. of persons	4	5	15	11	5

- d) Find coefficient of variation from the following data. (5)

Age in years	10-20	20-30	30-40	40-50	50-60
No. of mobile users	8	12	20	14	10

- e) The following data gives the distribution of weights of boys and girls in the class. Find, combine arithmetic mean and decide which group is more consistent. (5)

	Boys	Girls
Number	55	65
Mean weight	58 kgs	44 kgs
S.D	3 kgs	2 kgs

Q.4 Attempt any 4 from the following:

- a) Define the following terms with examples:
(i) Sample space (ii) Mutually exclusive events. (5)
- b) Given $P(A) = 0.5$, $P(B) = 0.4$ & $P(A/B) = 0.25$
Find, (i) $P(\bar{B})$ (ii) $P(A \cap B)$ (iii) $P(A \cup B)$ (5)
- c) A box contains 4 blue, 3 red and 2 black balls. If two balls are selected at random from the box, what is the probability that one is blue and one is red ball? (5)

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