

- Note :**
- 1) Attempt all questions.
  - 2) Figures to the right indicate full marks.
  - 3) Graph papers, log tables will be supplied on request.
  - 4) Use of calculator is allowed.

## SECTION - I

- Q. 1 a)** A, B and C start a partnership business investing ₹1,00,000, ₹80,000 (5) and ₹70,000 respectively. According to partnership agreement A & B get interest on their capitals at the rate of 5% p. a and C receives fixed annual salary of ₹10,000 The net profit is shared by the partners in proportion of their capitals and the business earns Gross Profit of ₹69,000 at the end of the year. Find the amount received by each partner at the end of the year.
- b)** A del credere agent charges 4% commission on cash sales and 8% (5) commission on credit sales. If his overall commission is 5.6%, find the ratio of cash sales to credit sales.

## OR

- Q. 1 p)** A piece of land was sold for ₹19,00,000 through a broker who received (5) 1.25% commission from the seller and 1.75% from the buyer. Find the amount paid by the buyer. Also find the amounts received by the seller and the broker.
- q)** An article has a catalogue price of ₹400. The seller gave 20% trade discount (5) and a further 5% discount for cash payment and still managed to get a 52% profit on her cost What was the cost price?
- Q. 2 a)** Janata Bank declared a right issue for its existing shareholders such that (5) they will issue two shares for every five shares held by them @ ₹1200 against its present market price of ₹2200. Mr. Jayesh holds 100 shares. Find how much amount is required to be invested in order to subscribe this right issue completely. Calculate per share price after right issue.
- b)** Two different kinds of food A & B are being considered to form a (5) weekly diet. The minimum weekly requirement of fats, carbohydrates and protein are 16, 25, 15 units respectively. One kg. of food A has 5 units of fats, 15 units of carbohydrates and 8 units of protein. One kg. of food B has 7 units of fats, 10 units of carbohydrates and 9 units of protein. The price of food A is ₹4 per kg. and that of food B is ₹3 per kg. Form the L. P. P. to minimize the cost.

OR

**Q. 2 p)** Rajesh purchased 600 units of Birla Equity fund on 1st Feb. 08, at ₹ 95.00 (5) NAV. He then sold these units on 31<sup>st</sup> July, 08 at 115 NAV. It carried exit load of 1.5% There is short term capital gain tax of 10%, which Rajesh has to pay. Determine his net profit after tax. What is annualized total return to Rajesh?

**q)** Solve graphically the L. P. P. (5)

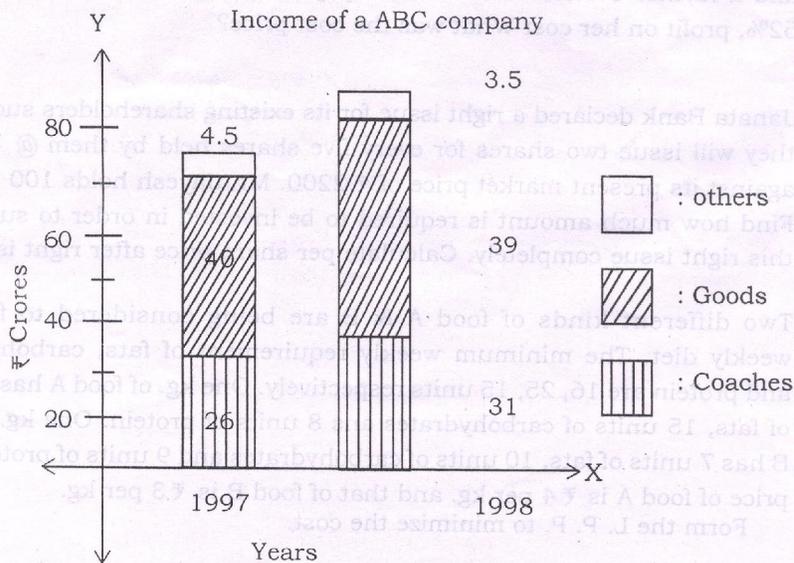
Maximize  $Z = 30x + 20y$   
 Subject to  $4x + 2y \leq 1000$   
 $2x + 3y \leq 1500$   
 $x \geq 0, y \geq 0$

**SECTION - II**

**Q.3 a)** The total number of accidents in Southern Railway in 1990 was 3500 and (5) it decreased by 300 in 1991 and by 700 in 1992. The total number of accidents in meter gauge section showed a increase from 1990 to 1992. It was 284 in 1990, 346 in 1991 and 428 in 1992. In meter gauge section, 'Not Compensated' cases were 49 in 1990, 77 in 1991 and 108 in 1992. 'Compensated cases' in broad gauge section were 2867, 2587, 2152 in these three years respectively.

Prepare a neat table from the above report.

**b)** Following diagram shows incomes of a ABC company during 1997 and 1998. (5) commission on credit sales. If his overall commission is 5.6%, find the ration of cash sales to credit sales.



- 1) Name the diagram.
- 2) Which year has higher income ?
- 3) In which year, income from goods is less ?
- 4) Which type of income shows a rise in 1998 ?
- 5) Which other type of diagram can be used to represent the data.

OR

- Q. 3 p)** Draw a less than ogive curve for the following data. Hence, find number of (5) employees whose salary is more than ₹ 7500.

Salary (x)	5000	6000	7000	8000	9000	10,000
No. of employees with salary < x	0	10	18	21	23	24

- q)** Information obtained from a college register is described below. Represent (5) the same in a form of neat table.

“The number of students in a college in the year 2001 was 1100, of those 980 were boys and rest girls. In 2002, the number of boys increased by 100% and that of girls increased by 300% as compared to their strength in 2001. In 2003, the total number of students in a college was 3600, the number of boys being double the number of girls.”

From the table, also determine.

- 1) The percent increase in the total strength in 2003 as compared to 2001.
- 2) The percent increase in the number of girls in 2003 as compared to 2001.

- Q. 4 a)** i) Calculate mean and mode from the frequency table below : (3)

Observations	103	110	112	118	95
Frequency	4	6	10	12	3

- ii) If arithmetic mean of weights of 100 students in class is 52 kg. Out of (2) 100 students, there are 60 boys and arithmetic mean of their weights is 54 kg. Find arithmetic mean of weights of 40 girls.

- b) Obtain Quartile Deviation and its coefficient from the following frequency (5) distribution.

Monthly Salary (in ₹)	1400	1600	1800	2000	2200	2400
	1600	1800	2000	2200	2400	2600
Frequency	12	30	55	40	35	28

OR

- Q. 4 p) Calculate median income and modal income from the following income distribution. (5)

Daily Income (in ₹)	30 and below	31-60	61-90	91-120	121-150	150 and above
No. of Persons	22	198	110	95	42	33

- q) The number of runs scored by cricketers A & B in 5 test matches are shown below : (5)

A	5	20	90	76	102	90	6	108	20	16
B	40	35	60	62	58	76	42	30	30	20

- Find (i) Which cricketer is better in average ?  
(ii) Which cricketer is more consistent ?

- Q. 5 a) Explain the following terms with suitable example . (5)

- Random experiment
- Sample space of an experiment
- An event
- Mutually Exclusive events
- Exhaustive events

- b) Following is the probability distribution of X. Find  $E(x)$ ,  $Var(x)$  (5)

X	0	1	2	3	Total
P(x)	1/8	3/8	3/8	1/8	1

OR

Q. 5 p) In a sample of 1000 cases, the mean of a certain test is 14 and S. D. is 3 (5)  
Assuming the distribution to be normal, find

- How many candidates score between 5 & 20 ?
- How many score below 17 ?

Given : Area under the standard normal curve,

$$P(Z > 1) = 0.6587$$

$$P(Z > 2) = 0.5228$$

$$P(Z > 3) = 0.4986$$

- q) If  $P(A) = 0.6$ ,  $P(B) = 0.5$ ,  $P(A \cap B) = 0.3$   
Compute (i)  $P(A')$  (ii)  $P(A \cup B)$  (iii)  $P(A' \cap B')$   
(iv)  $P(A' \cap B)$  (v)  $P(A' \cup B')$

