TIME : 2 Hrs. MARKS : 60

Instructions :-

1) Solve any two out of four from section I.
2) Solve any three out of six from section II.
3) Graph papers will be supplied on request.
4) Figures to the right indicate full marks.
5) Simple function calculator is allowed.

Section - I

Q.1 a) A salesman is allowed $7\frac{1}{2}$% commission on the total sales made by him plus a bonus of $\frac{1}{4}$% on the excess of his sales over Rs. 8000. If his total earnings are Rs. 724, find the value of the goods sold by him. [4]

b) A flat was sold for Rs. 3,25,000 with the help of a broker who charged 3% brokerage from buyer and $2\frac{1}{2}$ % brokerage from the seller. find

i) The total brokerage
ii) The amount paid by the buyer
iii) The amount received by the seller. [4]

c) Aditi invested Rs. 19890/- to purchase shares of a company with face value of Rs. 10 each, at market price of Rs. 130. She received dividend of 20% as well. Afterwards, she sold these shares at market price of Rs. 180. She had to pay brokerage of 2% for both purchase and sales of shares. Find her net profit. [4]

Q. 2. a) A trader allows 25% discount on the list price and a further discount of 4% for cash payment. Find the list price of the goods sold for a net amount of Rs. 504. [4]

b) Mr. Khan buys 500 ten rupee shares of a company at Rs. 15 each from the stock market. The company pays 14% dividend annually. If the brokerage is paid at 1% on the share bought, find -

i) The investment of Mr. Khan in shares.
ii) The annual income from the shares.
iii) The rate of return from the shares. [4]

c) Ms. Paroma chatterjee bought some units of 'HDFC Liquid Fund - Growth' on 03/05/07 at an NAV of Rs. 15.0061 and redeemed them on 16/07/07 and thus earned a 1.4467% rate of return. There were no loads. Find the NAV on 16/07/07 correct upto 4 decimal places. [4]

Q. 3. a) Aruna and Anita started a beauty parlour business by investing Rs. 1 lakh and Rs. 1.5 lakh respectively. After 5 months, both put in an additional Rs. 50,000 each as capital. At the end of the year, they earned Rs. 22,200 as profit. How should it be distributed among them ? [4]

b) An agent is instructed by the manufacturer to allow trade discount at the rate of 18% of the list price and receives commission at a rate of 5% on the selling price. If the agent sells goods worth Rs. 14000 as per list price, calculate the list price and the commission received by the agent. [4]

P.T.O.

c) Solve the following LPP graphically -

Maximize $Z = 5x + 3y$

Subject to, $2x + y \leq 9$

$3x + 2y \leq 16$

$x \geq 0, \quad y \geq 0$ [4]

Q. 4. a) A manufacturer makes a profit of 25% on cost after allowing a trade discount of 25%. If the cost of manufacturing increases by 15% and the manufacturer wants to make profit at 30% on cost, what should be the trade discount allowed ? [4]

b) Two types of food packets A and B are available. Each contains vitamins N_1 and N_2. A person needs 4 decigrams of N_1 and 12 decigrams of N_2 per day. Food packet A contains 2 decigrams of vitamin N_1 and 4 decigrams of Vitamin N_2. Food Packet B contains 1 decigram of vitamin N_1 and 4 decigrams of vitamin N_2. Food packets A and B costs Rs. 15 and Rs. 10 respectively. Formulate LPP to minimize cost. [4]

c) Rohit invested Rs. 18000 in a Mutual Fund on 3rd April, 2008 with NAV of Rs. 75.1092 and entry load of 2.25% of the NAV. He sold all the units on 17th september, 2008 with NAV of Rs. 97.2516 without any exit load. Find his total gain and rate of return. [4]

Section - II

Q. 5. a) A survey of 1000 persons from Mumbai was conducted of which 60% were Maharashtrians and remaining non Maharashtrians. The ratio of total number of men and women was 1 : 1. 50% of the men were Maharashtrians and remaining non-Maharashtrians. 100 non Maharashtrian men and 50 Maharashtrian men watched 'English' news on television. Among women, 100 Maharashtrian women and 50 non - Maharashtrian women watched 'Hindi' news on television. Tabulate the above information. [6]

b) Calculate arithmetic mean and median for the following data giving the monthly food expenditure of 100 families. [6]

Food expenditure (in Rs.)	:	1000-1300	1300-1600	1600-1900
No. of Families	:	20	25	35
Food expenditure (in Rs.)	:	1900-2200	2200-2500	
No. of Families	:	15	5	

Q. 6. a) Distinguish between :-

i) Discrete variable and continuous variable

ii) Class limits and class boundaries.

iii) Inclusive method and exclusive method of forming class intervals. [6]

P.T.O.

b) For the following probability distribution, obtain - [6]

i) $p(x > 2)$ ii) $p(x \leq 1)$

iii) $p(x = 2 \text{ or } 3)$ iv) $E(x)$ v) $v(x)$

X :	-2	-1	0	1	2	3
P(x) :	0.1	0.2	0.2	0.3	0.15	0.05

Q. 7. a) Calculate mode Q1 and Q3 for the following data - [6]

Life in (hrs) (00) hrs :	5-10	10-15	15-20	20-25	25-30	30-35	35-40
No. of bulbs :	3	8	14	18	10	5	2

b) Explain the following terms -

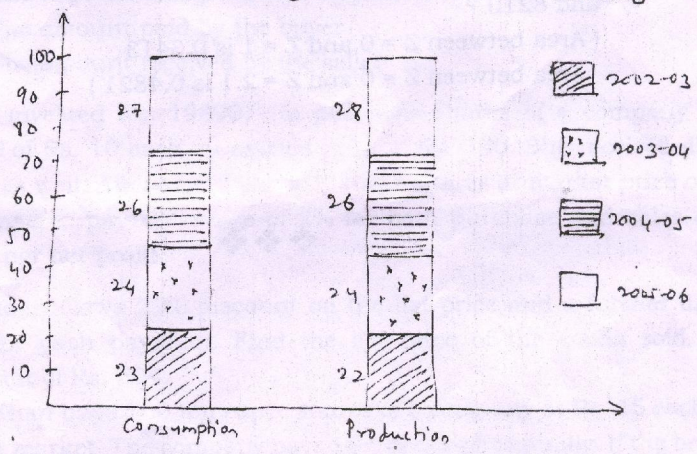
i) Sample space

ii) event

iii) Mutually exclusive events

iv) Complementary event [6]

Q. 8. a) Consumption and production of Natural Rubber for the years 2002-2006 is given below. Observe the diagram and answer the following.



i) In which year production of Natural Rubber is maximum ?

ii) In which year consumption of Natural Rubber is minimum ?

iii) In which year consumption and production is same ?

iv) In which year, consumption is more than production ?

v) In which year, consumption is less than production ?

vi) Name the type of diagram. [6]

b) Find mean deviation from mean and its coefficient for the following data : [6]

Age in years :	20-22	22-24	24-26	26-28	28-30	30-32	32-34
No of Employees :	70	90	110	140	130	80	80

Q.9. a) From the following table draw a cumulative frequency curve. Hence find Q_1, Q_3 and number of students whose marks are more than 38.

Marks :	10-20	20-30	30-40	40-50	50-60
No. of Students :	3	5	12	18	14

P.T.O.

b) Probability that A can hit a target is 1/3 and probability that B can hit a target is 1/4. If both A and B try to hit a target independently find the probability that i) the target remains unhit ii) the target is hit iii) only one of them hits the target. [6]

Q. 10.a) Find the combined mean and s. d. for the following. :

	Male	Female
Number	40	60
Mean weight	170 cm	160 cm
S. D.	5 cm	2 cm

Also find coefficient of variation for each group and decide which is more consistent. [6]

b) The daily sales of a certain item are normally distributed with mean Rs. 8000 and variance Rs. 10000.

i) What is the probability that on a certain day the sales will be less than Rs. 8210 ?

ii) What is the percentage of days when the sales will be between Rs. 8100 and 8210 ?

(Area between Z = 0 and Z = 1 is 0.3413
Area between Z = 0 and Z = 2.1 is 0.4821)

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