

- N. B. :** 1) All questions are compulsory.
2) All questions carry equal marks.
3) Graph papers will be provided on request.
4) Use of simple calculators is allowed.

SECTION - I

Q.1 A) A and B started a business by investing Rs. 1,20,000 each. After 3 months, B withdrew Rs. 30,000 and A put in the same amount additionally. How should a profit of Rs. 14,400 be divided among them at the end of the year ? (5)

B) An agent is instructed by the manufacturer to allow the retailers trade discount at the rate of 20% of the list price and receives from the manufacturer a commission at the rate of 7% of the net selling price. If the agent sells goods worth Rs. 15,000 as per list price, calculate his commission and the amount received by the manufacturer. (5)

OR

Q.1 P) An agent buys 400 articles on behalf of his principal charging him 1½% commission on cost. He sells them 12½% profit and takes 1¼% commission on sales. If he gets Rs. 465 on the whole, find the cost price and selling price of each article. (5)

Q) A flat was sold for Rs. 3,25,000 with the help of a broker who charged 3% brokerage from buyer and 2½% from the seller. (5)

- Find - i) The total brokerage
ii) The amount paid by the buyer
iii) The amount received by the seller.

Q.2 A) Mr. Joshi invested Rs. 68,289 in equity shares of Rs. 100/- each at the market price of Rs. 206/- each. After receiving 11% dividend he sold the shares at Rs. 230/- each. He paid brokerage of 2% on each transaction. Find his percentage return. (5)

B) A company produces soft drinks that has a contract which requires that a minimum of 80 units of the chemical A and 60 units of the chemical B to be present in each bottle of the drink. The chemicals are available in a prepared mix from two suppliers S and T. Supplier S has a mix of 4 units of A and 2 units of B that cost Rs. 10. Supplier T has a mix of 1 unit of A and 1 unit of B that costs Rs. 4. How many (5)

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- iii) Which country shows the highest difference between the earnings of two years ?
- iv) Which country shows the lowest difference between earnings of two years ?
- v) Name the type of diagram.

OR

Q.3 P) Present the following information in a suitable tabular form :- (5)

In 1985, out of 1750 workers of a factory, 1200 were members of a trade union. The number of women employed was 200, of which 175 did not belong to a trade union. In 1990, the number of union members increased to 1580, of which 1290 were men. On the other hand the number of non-union members fell down to 208 of which 180 were men.

In 1995, there were 1800 employees who belonged to a trade union and 50 who did not belong to a trade union. Of all the employees in 1995, 300 were women of whom only 8 did not belong to a trade union.

Q) From the following data, draw a less than cumulative frequency curve. Hence find i) Median ii) The number of students whose marks are more than 38. (5)

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

Q.4 A) Following is the frequency distribution of the number of telephone calls received in an interval of one hour by an automobile service centre in a week. (5)

No. of calls	7 - 12	12 - 17	17 - 22	22 - 27	27 - 32	32 - 37
No. of hours	4	9	16	21	13	9

Calculate Median for the data.

Also Find mode for the above data.

B) Calculate mean deviation from arithmetic mean for the following data : (5)

Weight in kgs. x	50	55	60	65	70	Total
No. of men f	15	20	25	30	10	100

Also obtain coefficient of mean deviation.

OR

Q.4 P) Find median from the following data giving the speed of 60 typists - (5)

Speed (Words Per minute)	No. of Typists	Speed (Words Per minute)	No. of Typists
40 - 44	5	60 - 64	8
45 - 49	8	65 - 69	8
50 - 54	15	70 - 74	3
55 - 59	12	75 - 79	1

Also obtain Q1 and Q3

Q) The following are some particulars of the distribution of weights of boys and girls in a class. (5)

	Boys	Girls
Number	100	50
Mean Weight	60	45
Variance	9	4

Find the standard deviation of the combined data. Which of the two distributions is more variable ?

Q.5 A) A box contains 5 white, 3 black and 2 red balls. If 4 balls are selected at random, what is the probability that - (5)

- All are white balls
- two black and two red balls
- three black balls

B) Find mean and variance of x given the following probability distribution - (5)

x	2	4	6	8	10
p	0.3	0.2	0.2	0.2	0.1

OR

Q.5 P) A problem in statistics is given to three students A, B, and C, whose chances of solving it are $\frac{1}{2}$, $\frac{1}{3}$ and $\frac{1}{4}$ respectively. Find the probability that (5)

- only one of them solves it
- none on them solves it
- at least one of them solves it

Q) The mean life of tubes of a certain make is 1000 hours with a standard deviation of 200 hours. Out of 10,000 tubes of that make, how many would - (5)

- be burning after 1300
- fuse out in 950 hours ?

What number is expected to have a life between 900 and 1200 burning hours?

MARKS : 40

(for a standard normal variate Z, area under the curve between -

Z = 0 and Z = 1.5 is 0.4332

Z = 0 and Z = 0.25 is 0.0987

Z = 0 and Z = 0.5 is 0.1915

Z = 0 and Z = 1 is 0.3413)

Q1) Give a brief note of any one of the communication channels that pass from the cortex to the cerebellum. Name the channel of communication.

Q2) Write a short note on the role of the cerebellum in forming a conditioned reflex.

Q3) Write a short note on the role of the cerebellum in forming blood circulation, breathing, and other functions that occur inside your head.

Q4) Write a short note on the role of the cerebellum in the main control of the body's movements and posture.

Q5) Write a short note on the role of the cerebellum in the control of the body's movements and posture. It is very strong and is called the main control of the body's movements and posture. It is very strong and is called the main control of the body's movements and posture.

Q-2 Write a short note on any two of the following:

- 1) Advantages of Computer Construction.
- 2) Advantages of Personal Construction.
- 3) Language barriers.
- 4) Importance of listening skills.

Q-3 A) What is communication? Comment on the importance of communication in the corporate world.

B) Discuss the advantages and disadvantages of computer and Internet in modern business communication.