

Please check whether you have got the right question paper.

- N.B:**
1. **Question No. 1 is compulsory.**
 2. **Attempt any four questions from the remaining.**
 3. **Use any four questions from the remaining.**
 4. **Figures to the right indicate full marks.**

1. (a) The mean of marks scored by 300 students in the subject of statistics is 45. The mean of top 100 of them was found to be 70 and the mean of 100 was known to be 20. What is the mean of the remaining 100 students? **4**

OR

- (a) Calculate the Arithmetic Mean for the following data. **4**

Marks obtained	10-20	20-30	30-40	40-50	50-60
No. of students	2	4	6	8	10

- (b) Fit a straight line to the following data. **4**

X	1	2	3	4	5
Y	25	28	33	39	46

OR

- (b) In a box there are 20 aspirin, 14 analgin, 10 paracetamol tablets. If two are selected at random, find probability that:- **4**

- Both are aspirin.
- They are not paracetamol.

2. (a) The mean and variance of a binomial distribution are 10 and 6 respectively. Find the values of n, p and q with usual notations. **4**

- (b) Find mean deviation from mode for following distribution:- **4**

Size	10-15	15-20	20-25	25-30	30-35	35-40
No. of objects	8	12	12	18	14	10

3. (a) Two cards are drawn from a pack of well shuffled cards. Find the probability that: **4**

- At least one is a face card.
- Both are of same colour.

- (b) Find expected value of random variable X and variance for the following probability distribution:- **4**

X	:	2	4	6	8	10
P(x)	:	1/8	1/4	3/16	1/4	3/16

4. (a) Find mean, standard deviation and co-efficient of variation from the following data:- **4**

Marks	5-10	10-15	15-20	20-25	25-30	30-35
No. of Students	7	13	22	18	11	8

- (b) Find Karl-Pearson's co-efficient of skewness:- **4**

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70
No. of Students	10	15	24	25	10	10	6

Q.P. Code :09457

5. (a) Mean weekly sales of chocolate bars in candy stores was 143.5 bars per store. After an ad campaign mean weekly sales in 12 stores for a week increased to 153.7 with S. D. 17.2 bars. Was ad campaign successful? **4**
(Test at $\alpha = 0.05$. Use $t_{0.05,11}=1.796$)

- (b) Find k and hence find expected value of a random variable x and variance for a probability distribution: **4**

X	1	2	3	4	5	6
P(x)	7.9	6.8	5.7	4.6	3.5	2.4

6. (a) The mean height of soldiers is 68.22 inches with a variance of 10.8 inches². How many soldiers in a regiment of 1000 would you expect to be- **4**

- i. Over six feet tall.
- ii. Below 5.5 feet.

The area under normal curve is given below:-

Z	0.6756	1.15
Area	0.2501	0.3749

- (b) Fit a Poisson distribution to the data:- **4**

X	0	1	2	3	4	5	6
f	48	27	12	7	4	1	1

7. (a) Following are weekly sales records (in '000 of Rs.) of 3 salesmen A, B, and C of a company during 15 sales calls:- **5**

A	25	30	36	38	31
B	31	39	38	42	35
C	24	30	28	25	28

Using ANOVA technique, determine whether Sales of the three salesmen are different. Given value of F for (2,12) d.f. at 5% level of significance is 3.89

- (b) Calculate Arithmetic mean for the following data:- **3**

Class	10	23	14	18	20
Frequency	5	7	2	1	5