

SHIVAJI COLLEGE, UNIVERSITY OF DELHI

DEPARTMENT OF COMMERCE

INTERNAL TEST (Academic Year 2023-24)

Name of the Course : BCom H **Semester:** IV **Section A and B**
Name of the Paper : Business Statistics **UPC 2412082401**
Duration : 90 minutes **Maximum Marks:** 30
Date of Test : 15 April 2024 **Faculty Name:** Dr Suman Kharbanda

1. For a group of 100 people ,the arithmetic mean of age was 40 years and standard deviation was 10 years. If at the time of data collection two values were wrongly written as 30 and 70 instead of 37 and 3 respectively find the correct mean and standard deviation.
2. Following results are given before and after a dispute in a private firm. Compare the skewness and variability of wages . Comment on the results from the perspectives of management and labour union.

	Before the dispute	After the dispute
No of employees	950	900
Arithmetic Mean of wages	10,500	11000
Median Wages	10,500	9700
Standard deviation	4500	4800

3. Find the Karl Pearson's coefficient of correlation between X and Y for the following data

Y ---> X	5-10	10-15	15-20	20-25	25-30	Total
20	6	3	--	--	--	9
30	3	16	10	--	--	29
40	--	10	15	7	--	32
50	--	--	7	10	4	21
60	--	--	--	4	5	9
Total	9	29	32	21	9	100

4. First three moments of a distribution around a value 2 are 1, 16 and -40. Examine the skewness of the distribution.

SECTION B

Attempt any two

1. The mean and variance of a discrete random variable X are 6 and 2 respectively.
Assuming X to be a binomial variable., find $P(5 \leq X \leq 7)$.
Also find $P(X=0)$
2. A firm has three machines A,B, C which produce the same product X. While machine B has same capacity as machine A , machine C produces half the quantity produced by A. It is known that the percentage of defective items produced by A, B and C are 2 %, 3 % and 1 % respectively. Daily production of all the machines is stored together in a bin. One unit of X is drawn from the bin and it is found to be defective. What is the probability that it was produced by machine B ?
3. In a town on an average, 10 accidents occur in a span of 50 days. Find the probability that there will be three or more accidents in a day.

Faculty Signature :



SHIVAJI COLLEGE, UNIVERSITY OF DELHI

DEPARTMENT OF COMMERCE

Internal Test (Academic Year 2023-24)

Name of the Course : BCom H

Semester: IV Section A and B

Name of the Paper : Business Statistics

UPC : 2412082401

Faculty Name :Dr Suman Kharbanda

Date of Assignment : April 12,2024

Duration: 90 minutes

Maximum Marks: 30

SECTION A Attempt any three :

1. In an office there are 150 employees and their salaries (in thousand rupees) is given as below. Find the value of X and Y given that median is 141.75 and mode is 147.62

Class Interval	105-115	115-125	125-135	135-145	145-155	total
Frequency	8	15	x	y	62	150

2. Sample A has 90 observations with mean = 55 and standard deviation is 3. Sample B has 110 observations with mean 60 and standard deviation is 2. Compare the uniformity of data in the two samples.
Also find the mean and standard deviation of the combined sample of 200 observations.

3. Find the Karl Pearson's coefficient of correlation between X and Y for the following data

Y ---> X	5-10	10-15	15-20	20-25	25-30	Total
20	6	3	--	--	--	9
30	3	16	10	--	--	29
40	--	10	15	7	--	32
50	--	--	7	10	4	21
60	--	--	--	4	5	9
Total	9	29	32	21	9	100

4. If the first three moments about a value 2 are 1.16.and -40 . Examine and comment on the skewness of the distribution.

SECTION B :Attempt any two

2. A box contains four identical looking dice, out of which three are fair and the fourth is loaded in such a way that the face marked 5 appears in 60% of the tosses. One dice is selected at random from the box and tossed. If it shows 5, what is the probability that it was from a loaded (defective) die.

3. Ten percent of items produced in a machine are usually found to be defective. What is the probability that in a random sample of 12 items (i) none is defective (ii) at least two are defective? Assume Binomial distribution.
4. Following data is given on money in spent on R&D (X) and annual profits (Y) of the firm Find the regression equation and estimate the level of profit in year 7 if $X=40$.

year	1	2	3	4	5	6
X money spent on R&D	5	11	4	5	3	2
Y (Annual profit)	31	40	30	34	25	20

Faculty Signature :

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