

Question Bank

UNIT TEST -I

Statistical Modelling For Machine learning (SML) (313307)

UNIT -1 Statistical Techniques(CO1)

(2 marks)

1. A total of 25 patients admitted to a hospital are tested for levels of blood sugar, (mg/dl) and the results obtained were as follows:

87, 71, 83, 67, 85, 77, 69, 76, 65, 85, 85, 54, 70, 68, 80, 73, 78, 68, 85, 73, 81, 78, 81, 77, 75

Find the mean (mg/dl) of the above data.

2. Find K, if mean of the following observations is 2.5.

1, 2, 3, 2, 3, k, 1, 3, 1, 2, 3, 5

3. Find Decile D_5 for the following Data:

21, 15, 40, 30, 26, 45, 50, 54, 65, 70

4. Find Quartile Q_3 (upper Quartile) for the following Data:

33, 18, 24, 11, 59, 47, 61, 72

5. Find Harmonic mean of the daily income of 5 families given below

90, 100, 150, 120, 200.

6. Find the coefficient of Range: 40, 52, 47, 28, 45, 36, 47, 50.

7. For a certain distribution, Karl Pearson's coefficient of skewness is 0.5, standard deviation is 10 and mean is 40. Find mode and Median.

8. The mean weight of 40 boys in a class is 80 and that of 20 girls is 50. Find the combined Mean.

9. Calculate Mean of the following observations:

4.8×10^4 , 4.2×10^4 , 5.1×10^4 , 3.8×10^4 , 4.4×10^4 , 4.7×10^4

10. Calculate Geometric mean of the following Data:

25, 50, 30, 70, 42, 34, 36, 48, 34, 60

11. Find Decile D_5 for the following Data: 19, 12, 16, 1, 14, 09, 06, 01, 12, 13, 10, 19, 7, 5, 8.

12. If S.D of data is 8.5, mean of data is 20.6 and mode of data is 18.52, find Karl Pearson's coefficient of skewness.

UNIT -2 Statistical Methods (CO2)

(2 marks)

1. Find the co-variance for the following data:

x	1	2	3	4	5
y	2	3	4	6	10

2. Given $N=7$, $\sum X = 35$, $\sum Y = 70$, $\sum XY = 409$, $\sum X^2 = 203$, $\sum Y^2 = 830$, Calculate coefficient of correlation.
3. If correlation coefficient between x and y is 0.5 and the regression coefficient of y on x is 0.5 then find the regression coefficient of x and y.
4. Coefficient of correlation between x and y is 0.4. Their covariance is 10. The variance of x is 9. Find the standard deviation of y series.
5. You are given the following data:

	For x	For y
Airthmetic mean	36	85
Standard deviation	11	8

Correlation coefficient between x and y is 0.66.

Find regression equation x on y.

6. Find Correlation coefficient between X and Y given that $n=25$, $\sum X = 75$, $\sum Y = 100$, $\sum XY = 325$, $\sum X^2 = 250$, $\sum Y^2 = 500$.
7. Define Types of correlation.
8. Find Spearman's rank correlation coefficient for the data if ranks are given

R ₁	1	2	3	4	5	6
R ₂	1	4	6	2	3	5

9. Define the types of skewness.
10. Define Measure of Kurtosis.

UNIT -1 Statistical Techniques(CO1)

(4 marks)

1. The mean annual salary paid to all employees of a company was Rs. 4496. The mean annual salaries paid to male and female employees were Rs. 5000 and Rs. 3600 respectively. Determine the number of male and female employed by the company if total number of employees was 250.
2. The following data attained from a garden records of certain period Calculate the median weight of the apple

Weight in grams	410 – 420	420 – 430	430 – 440	440 – 450	450 – 460	460 – 470	470 – 480
Number of apples	14	20	42	54	45	18	7

3. Determine the mode graphically and verify analytically.

Class interval	0-10	10-20	20-30	30-40
Frequency	2	5	9	6

4. Calculate Bowely's coefficient of skewness of the following data:

Class interval	0-10	10-20	20-30	30-40	40-50	50-60
Frequency	2	8	10	2	13	4

5. Marks obtained by 150 students are given below. Find Coefficient of skewness. State the type of skewness.

Class interval	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency	10	40	20	0	10	40	16	14

6. The scores of two Batsmen A and B in ten innings during a certain season as under:

A	32	28	47	63	71	39	10	60	96	14
B	19	31	48	53	67	90	10	62	40	80

Find which of the two Batsmen is more consisting in scoring?

7. Find mode of the distribution by drawing histogram.

Marks	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49
No. of students	4	6	10	5	7	3	9	6

8. Find Variance and coefficient of variation for the following data

C.I.	55-65	65-75	75-85	85-95	95-105	105-115	115-125
No. of workers	10	12	15	20	14	7	2

9. Calculate the mean and standard deviation of the following frequency distribution:

Class interval	0-10	10-20	20-30	30-40	40-50
frequency	14	23	27	21	15

UNIT -2 Statistical Methods (CO2)

(4 marks)

1. Fit a straight line $y = a + bx$ to the data below & also estimate y at $x=2.5$

x	1	2	3	4	5
y	2	5	3	8	7

2. Calculate Karl Pearson's coefficient of correlation for the following data. Also explain types of correlation.

x	5	9	13	17	21
y	12	20	25	33	35

3. Find Spearman's rank correlation coefficient for the data.

x	10	12	18	18	15	17	40
y	15	19	25	30	25	25	30

4. Find correlation coefficient for the following data;

X	9	8	7	6	5	4	3	2	1
y	15	16	14	13	11	12	10	8	9

5. For 10 observations on Price(x) and supply (y), the following data were obtained:

$\sum X = 130$, $\sum Y = 220$, $\sum XY = 3467$, $\sum X^2 = 2288$, $\sum Y^2 = 5506$. Estimate y at $x=16$.

6. The following Data, obtain the regression equation of Y on X.

x	6	2	10	4	8
y	9	11	5	8	7

7. The following data relate to the number of passenger cars (in millions) sold from 2007 to 2014

Year	2007	2008	2009	2010	2011	2012	2013	2014
Passenger cars	6.7	5.3	4.3	6.1	5.6	7.9	5.8	6.1

8. The deviations from respective means of X and Y series are given below.

X	-4	-3	-2	-1	0	1	2	3	4
Y	3	-3	-4	0	4	1	2	-2	-1

