D.K.M.COLLEGE FOR WOMEN (AUTONOMOUS), VELLORE-1.

Applied statistics for HR managers

UNIT -I   Section A   (6 marks)

1. Define statistics and explain the Nature of Statistics.
2. What do you mean by Statistical method and explain some of the methods.
3. What are the limitations of statistics.
4. Define Classification and mention the types of Classification.
5. Explain - Quantitative Classification.
6. What is tabulation and mention some characteristics of good table.
7. Represent the Following data by a simple bar diagram.

Year	Production
1974	45
1975	40
1976	44
1977	41

8. Draw a Pie-diagram of the Following data relation to areas under different food crops.

Food crops	Rice	Wheat	Barley	Jowar	Bujra	Maize	others
Area in acres	8	8	4	2	2	5	5

9. Construct a histogram and frequency curve for the following data.

Weights	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80
No of men	4	5	9	6	11	5	7	3

10. Differentiate Classification and tabulation.

Section – B   (15 marks)

1. Explain the Scope of Statistics in detail.
2. Explain the types of classification in detail.
3. Explain tabulation and its types with example.
4. Explain types of diagrammatic representation of statistical data.
5. Draw the gives ("less than" and "more than" type) for this.
6. Draw a Lorenz Curve from the following data to study the extent of dispersion graphically.

Amount of Profit	150	160	600	840	1050	1500	1700	4000
No of Companies	28	20	34	30	28	26	22	12

Unit – II   Section – A   (6marks)

1. What are marks and Demerits of AM & GM, HM.
2. Calculate the AM for the following data.

Age in Years	8	10	12	15	18
Number of workers	5	7	12	6	10

3. Find the median of the following distribution.

X	5	10	15	20	25	30
Y	7	12	37	25	22	11

4. Find the mode of the following data

X	46-50	51-55	56-60	61-65	66-70	71-75	76-80
Y	2	3	5	7	9	11	7

5. Calculate the A.M., G.M and H.M of the following quantities: 3,6,24,48.
6. Find the Standard deviation for the following data giving wages of 220 Persons.

Wages in Rs	70-80	80-90	90-100	100-110	110-120	120-130
No of Persons	12	18	35	42	50	45

Section – B (15 marks)

1. From the given Frequency distribution of height of 360 boys in the age group 10-20 years. Calculate the   (I) arithmetic mean, (II) co-efficient of variation,
   (III) Standard deviation.

Height	126-130	131-135	136-140	141-145	146-150	151-155	156-160	161-165
No of boys	31	44	48	51	60	55	43	28

2. The scores of two players A and B in 12 rounds are

A	74	75	78	72	78	77	79	81	79	76	72	71
B	87	84	80	88	89	85	86	82	82	79	86	80

   Identify the better player and more consistent player

3. Find the Mean, Median and Mode for the following data and verify the empirical relation.

Class	1-10	11-20	21-30	31-40	41-50	51-60	61-70
Frequency	3	7	13	17	12	10	8

Unit – 3 (Section A – 6 marks)

1. Find the co-eff of correlation between x and y

X	1	2	3	4	5	6	7	8	9
Y	12	11	13	15	14	17	16	19	18

2. The following are the rank obtained by 10 students in statistics and Mathematics.

Statistics	1	2	3	4	5	6	7	8	9	10
Mathematics	1	4	2	5	3	9	7	10	6	8

To what extent is the knowledge of students in the two subjects related.

3. Find the co-efficient of correlation for the following data.

X	35	40	60	79	83	95
Y	17	28	30	32	38	49

4. The following table gives age(x) in years of car and annual maintenance as Y.

X	1	3	5	7	9
Y	15	38	21	23	22

Estimate the maintenance
For 4 year old car after finding
regression equation

5. Obtain the least square regression line at y on x for the following data.

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

Also obtain an estimate of y which should correspond on an average to x=6.2.

6. Obtain the two regression lines from the following data.
   N=70, $\sum x=80$, $\sum y=60$, $\sum x^2=1680$, $\sum y^2= 320$, $\sum xy=480$.

Section- B(15 marks)

1. The heights and in weights at random sample at 8 adult males cure shown in the following data.

Height	177	163	173	182	171	168	174	184
Weight	71	67	77	85	69	62	73	80

 I. Calculate the co-eff at correlation
 II. Find the regression line x on y
 III. Find the regression line y on x

2. Find the equation of regression lines for the following data.

X	25	28	35	32	36	36	29	38	34	32
Y	43	46	49	41	36	32	31	30	33	39

3. Calculate karl Pearson's co-efficient of correlsion from the following data, using 20 as the working mean for m the price and 70 as the working mean for demand.

Price	14	16	17	18	19	20	21	22	23
Demand	84	78	70	75	66	67	62	58	60

4. Find the rank correlation co-efficient for the following data.

X	92	89	87	86	86	77	71	63	53	50
Y	86	83	91	77	68	85	52	82	37	57

Unit – IV Section – A (6 marks)

1. A sample of 900 items has mean 3.4 and standard deviation 2.61 cam the sample be regarded as drawn from a population with mean 3.25 at 5% level of significance?

2. The means of two samples of 1000 and 2000 members are respectively 67.5 and 68 inches can they be regarded as drawn from the same population with S.D 2.5 inches.
3. A machine produced 20 defective articles in a batch of 400. After overhauling it produced 10 defectives in a batch of 300. Has the machine improved?
4. A filling machine is expected to fill 5kg of powder into bags. A sample of 10 bags gave the 4.7,4.9,5.0,5.1,5.4,5.2,4.6,5.1,4.6 test whether the machine is working properly.

5. A IQ test was administered to 5 persons

Candidates	1	2	3	4	5
IQ before training	110	120	123	132	125
IQ after training	120	118	125	136	121

Test whether there is any change in I2 after the training programme.
6. A sample of size 9 from a normal population gate x =15.8 and s=10.3. Find 99% confide me interval for population mean.
7. Two random samples gave the following results $n_1=10$, $\sum(x_i-\bar{x})^2 =90$, $n_2= 12$, $\sum(y_i-\bar{y})^2=108$ Test whether the sample came from the populations with the sample variances.
8. In 120 throws of a single die, the following distribution at facer was observed.

Face	1	2	3	4	5	6
Frequency	30	25	18	10	22	15

Can you say that the die is biased.

Section-B (15 marks)

1. A set at 5 identical coins is tossed 320 times and the number at heads appeaving each time is recorded.

No at heads	0	1	2	3	4	5
Frequency	14	45	80	112	61	8

Test whether the coins are unbased at 5% level of significance.
2. Values of a variety in two samples are given below.

Sample I	5	6	8	1	12	4	3	9	6	10
Sample II	2	3	6	8	1	10	2	8		

Test the significance of the difference between the two sample means and the two sample variances.
3. Below are given the gains in weights of cows fod on two diets x and y. Gain in weights

Diet x	25	32	30	32	24	14	32			

Diet y	24	34	22	30	42	31	40	30	32	35

Test at 5% level, whether the two diets differ as regards their effect on mean increase in weight (15 df at 5% is 2.131)

4. From the following data obtained from a sample of 1000 persons, calculate the standard error at the mean

Earnings	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No of persons	50	100	150	200	200	100	100	100

If the average of population is 42, what is your conclsion about the reliability of the sample.

UNIT – 5 (6 marks) Section- A

1. What are the steps involve in ANOVA.
2. Write a short note on ANOVA.
3. What is cluster analysis – Explain in detail.
4. What is Factor analysis – Explain in details.
5. What are the characteristics at ANOVA table.
6. What are the characteristics at cluster and Factor analysis.

Section –B (15 marks)

1. Analysis of variance explains in detail.
2. Clusters factor analysis explain in detail.
3. Set up ANOVA table for the data give below

   Which yields at 15 samples of plot under three varieties of seed.

A	B	C
20	18	25
21	20	28
23	17	22
16	15	28
20	25	32

Using analysis of variances whether there is a significant difference in the average yield of seeds.