

1. Weight(kg) of sample of 35 workers working in a company are found as follows

56	78	65	49	63	58	70	61	53	69
57	69	90	78	64	71	65	49	56	59
50	57	62	70	68	54	49	87	68	71
55	78	80	73	85					

- Is mean weight of workers 64 kg at 1% level of significance?
- Find 99% confidence limit for mean weight of workers in company

2. Marks secured in statistics by a sample of 33 and 36 students of section A and section B are found as follows

Section A

37	29	50	58	24	41	25	49	56	49	17
56	48	35	29	43	28	7	21	33	40	38
50	17	32	50	18	44	49	47	38	51	51

Section B

38	57	37	43	55	53	48	40	50	34	24	15
46	58	55	49	53	58	50	37	44	52	40	56
51	15	10	37	51	38	42	57	13	7	32	42

- Is there any significant difference in mean marks in statistics of section A and section B at 1% level of significance
- Find 99% confidence limit for difference of mean marks

3. Following information represents result of a sample of 32 students of B Sc csit ii semester

P	P	P	F	P	F	P	P
F	F	P	P	P	P	F	P
P	P	F	P	P	P	F	P
P	F	P	P	P	F	P	P

- Is pass percentage of B.Sc csit ii semester 80%? Use 5% level of significance
- On basis of sample pass percentage what is sample size required to study result of B.Sc CSIT ii semester students at 95% confidence limit with 5% margin of error

4. Following information represent result of a sample of 32 BIT i semester student and 36 BSc CSIT i semester students

BIT i semester

P	F	P	P	P	P	F	F
F	F	P	P	P	P	P	P
P	P	F	F	P	P	F	P
P	F	F	P	P	F	P	P

B Sc CSIT i semester

P	P	F	P	P	P	P	F	P
P	P	F	P	F	P	P	P	P
F	P	P	P	F	F	P	P	P
P	F	P	P	P	F	P	P	P

Is there any significant difference in pass percentage of BIT i semester and B Sc CSIT i semester students? Use 5% level of significance

5. Marks secured by a sample of 22 students in Final examination of Statistics I are found as 43, 52, 34, 56, 28, 12, 46, 38, 10, 51, 49, 38, 46, 24, 36, 44, 38, 46, 49, 27, 35, 41.

- Is average marks in statistics I 30 at 5% level of significance using parametric test
- Obtain 95% confidence limit for average marks of statistics I for all students appeared in examination.
- On basis of sample standard deviation obtained from marks of students in statistics I what is sample size required for the study of marks distribution of students at 5% level of significance with 10% margin of error

6. Following are marks secured by 14 students of section A and 15 students of section B of DWIT in final examination of Digital logic are found as

Section A	34	48	21	52	31	43	29	37	24	52	49	34	40	48	
Section B	11	53	27	38	47	50	26	38	44	33	27	33	41	10	28

- Is mean marks of section A and section B identical at 1% level of significance?
  - Obtain 99% confidence limit for difference of mean
7. Marks secured by a sample of 15 students of a college in first test and second test of Statistics II are found as

Student	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Test I	12	7	15	11	17	19	5	13	17	6	9	18	14	10	8
Test II	14	5	17	13	12	18	9	10	18	12	3	14	16	16	8

Is there improvement in marks in test II as compared to test I? Use parametric test at 1% level of significance

8. On tossing a coin 30 times outcomes of head and tail are found as;  
Head, Head, Tail, Head, Tail, Head, Head, Tail, Tail, Head, Tail, Head, Head, Tail, Tail, Head, Head, Head, Tail, Head, Tail, Head, Head, Tail, Tail, Head, Tail, Tail, Head.

- Are outcomes in random order?
- Is coin unbiased?  
Using 1% level of significance

9. Marks secured by a sample of 32 students in Final examination of Statistics I are found as 43, 52, 34, 56, 28, 12, 46, 38, 10, 51, 49, 38, 46, 24, 36, 44, 38, 46, 49, 27, 35, 41, 11, 23, 35, 42, 52, 49, 20, 35, 43, 37.

- Are samples selected in random order?
- Are marks uniformly distributed? Use Kolmogorov Smirnov test
- Are marks uniformly distributed? Use chi square test  
Using 5% level of significance.

10. Following are marks secured by 14 students of section A and 15 students of section B of DWIT in final examination of Digital logic are found as

Section A	34	48	21	52	31	43	29	37	24	52	49	34	40	48	
Section B	11	53	27	38	47	50	26	38	44	33	27	33	41	10	28

Is median marks of section A and section B identical at 5% level of significance using?

- Median test
- Mann Whiteny U test
- Kolmogorov Smirnov test

11. Following information are obtained from locality related to gender and eye color.

Person	Gender	Eye color
A	Male	Black
B	Female	Black
C	Male	Brown
D	Male	Black
E	Female	Blue
F	Male	Brown
G	Female	Black
H	Male	Black
J	Female	Black
K	Female	Brown
L	Female	Black
N	Male	Black
O	Female	Blue
P	Female	Brown
Q	Male	Black
R	Female	Black
S	Male	Brown
T	Female	Black
U	Female	Black
V	Male	Brown

Is there any association between gender and eye color? Use 5% level of significance.

12. Marks secured by a sample of 15 students of a college in first test and second test of Statistics II are found as

Student	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Test I	12	7	15	11	17	19	5	13	17	6	9	18	14	10	8
Test II	14	5	17	13	12	18	9	10	18	12	3	14	16	16	8

Is there improvement in marks in test II as compared to test I? Use non parametric test at 5% level of significance

13. Four diets are fed to 9 cows, each diet for a month and the result of increase(I) and decrease(D) of milk given by different cows are found as follows;

Cow Diet	I	II	III	IV	V	VI	VII	VIII	IX
D1	I	I	D	I	D	I	I	D	I
D2	D	D	I	D	I	D	D	I	I
D3	I	D	I	D	D	I	I	D	D
D4	I	I	I	D	D	I	I	D	I

Test whether diets are equally effective or not at 1% level of significance.

14. Following data represent the operating times in hours for four types of laptop before a charge is required.

Dell	5.3	4.8	6.1	3.5			
Acer	5.2	5.8	3.9	4.6	4.9	5.1	5.6
HP	4.5	5.2	3.8	4.8	5.3		
Lenovo	4.7	6.2	5.7	5.5	3.9	4.8	

Are operating time for all laptops equal at 5% level of significance use non parametric test?

15. The scores of 7 students in Statistics II in three test are found as

Student Test	A	B	C	D	E	F	G
I	15	13	8	12	9	16	13
II	14	16	12	10	14	11	6
III	10	12	5	16	8	14	16

- (i) Is there any significant difference in marks in three test?  
(ii) Is there any significant difference in marks of seven students?  
Use non parametric test at 1% level of significance.

16. The following information has been gathered from a random sample of apartment renters in a city. We have information of rent (in 000 Rs per month) based on the size of apartment (number of rooms) and the distance from downtown (in km)

Rent (000 Rs)	16	20	25	22	20	25
Number of rooms	4	6	3	4	5	3
Distance from downtown	8	10	4	6	2	1

- a. Obtain the multiple regression models that best relate these variables  
b. Interpret the obtained regression coefficients.  
c. If someone is looking for a two bed apartment 8 km from down town, what rent should he expect to pay?  
d. Obtain residuals  
e. Calculate standard error of estimate  
f. Test the significance of regression coefficients at 5% level of significance  
g. Test overall significance of regression equation at 5% level of significance
17. A developer of food for pig would like to determine what relationship exists among the age of a pig when it starts receiving a newly developed food supplement, the initial weight of the pig and the amount of weight it gains in a week period with the food supplement. The following information is the result of study of eight piglets.

Initial weight(pounds)	39	52	49	46	61	36	28	578
Initial age (weeks)	8	7	6	11	8	7	9	5
Weight gain	8	7	6	9	10	6	4	5

- a. Determine multiple correlation coefficient and partial correlation coefficients of dependent variable with independent variables.  
b. Determine multiple coefficient of determination and interpret  
c. Determine adjusted multiple coefficient of determination.
18. Let A, H, D and L represents Acer, HP, Dell and Lenovo laptop and following information represents their operating time in hours before charge is required.

A	H	D	H	D	L
5.2	3.8	4.6	5.2	3.6	4.4
L	A	H	L	L	A
5.6	3.9	4.6	6.2	4.8	3.5
H	D	L	D	A	D
4.4	3.6	5.2	4.8	4.2	5.4

A	L	A	H	D	H
6.1	4.7	3.2	5.3	4.8	3.9

Carryout analysis of the design at 1% level of significance.

19. Let A, H, D and L represents Acer, HP, Dell and Lenovo laptop and following information represents their operating time in hours before charge is required.

A	H	D	A	D	L
5.0	3.6	4.8	4.2	3.8	4.6
L	A	H	L	L	A
5.4	4.9	4.3	5.2	5.8	5.5
H	D	L	D	A	D
4.8	4.6	5.5	4.6	5.2	5.0
D	L	A	H	H	H
6.0	4.5	3.9	5.1	4.9	4.9

Carryout analysis of the design at 1% level of significance.

20. Let A, H, D and L represents Acer, HP, Dell and Lenovo laptop and following information represents their operating time in hours before charge is required.

A	H	D	L
4.2	4.8	4.2	6.2
L	A	H	D
4.6	5.9	4.8	5.2
H	D	L	A
5.4	5.6	5.6	4.8
D	L	A	H
4.1	5.7	4.2	4.3

Carryout analysis of the design at 5% level of significance.