BIJU PATNAIK UNIVERSITY OF TECHNOLOGY, BHUBANESWAR
2ND SEMESTER (BATCH 2019-21)

CLASS TEST – I

SUB : BUSINESS RESEARCH (18 MBA 204)

Time : 1.5 hours Full Mark – 30

Q.1. **Answer all the questions** **[10x1=10]**

Q.2. **Answer any two.** **[2x5=10]**

Q.3. **Case study (Compulsory)** **[10]**

-Best of Luck-

BIJU PATNAIK INSTITUTE OF IT & MANAGEMENT STUDIES

2nd SEMESTER (BATCH 2018-20)

CLASS TEST - II

BUSINESS RESEARCH (18 MBA 204)

Total Marks : 30 **Time: 1½ Hours**

I. Answer all the Questions (1x10=10)

1. What is the Standard error of (p1-p2)where p1=0.75,p2=0.5.n1=200 and n2=300
2. Find standard error of(X1-X2) where n1=n2=30 and σ1=3 and σ2=4
3. If P=0.5,p=0.48 and standard error of p=0.0158.Find test statistic –Z.
4. Find expected frequencies from the following(2x2)contingency table.

	A	A^C
B	20	300
B^C	80	600

5. If Sample variance 1=12 and Sample variance 2=18,then find test statistic F.
6. What is Standard Error.
7. Define Type-I and Type-II error.
8. What is the degrees of freedom of a contingency table of N columns and K rows.
9. Differenciate between one tailed and two tailed test.
10. Calculate standard error if 100 students are selected out of 500 strength &S.D is 95.

II. Answer any two of the following : (2x5=10)

1. A machine produced 20 defective articles in a batch of 400.After overhauling, it produced 10 defective articles in a batch of 300.Has the machine improved?(α=0.05)(Z-value at 5% level of significance and right tailed test is 1.64)

2. An IQ test was administered to 6 men before and after they were trained. The results are given below:

MEN	1	2	3	4	5	6
IQ before training	40	50	60	55	62	70
IQ after training	45	50	68	58	56	73

Test whether there is any change in IQ after training programme α=1%(t value at 1% level of significance and 2 tailed test with 5 degree of freedom is 4.032).

P.T.O.

3. The table given below shows the data obtained during an epidemic of cholera:

	Attacked	Not attacked
Inoculated	20	300
Not inoculated	80	600

Test the effectiveness of inoculation is preventing the attack of cholera.(α=0.05)(Chi-square value 5% level of significance and one degree of freedom is 3.84)

III. Long questions (Answer any one) (1x10=10)

1. Out of 800 people 25% were literate and 300 had travelled beyond the limits of their district.10% of the literate were among those who had not travelled. Prepare a 2 x 2 contingency table and test at 5% level of significance whether there is any relationship between travelling and literacy.(Given the table value of chi-square at 5% level of significance & 1 d.f=3.84)

2. Three samples each of size 5 were drawn from 3 uncorrelated normal populations with equal variance.Test the hypothesis that the population means are equal at 5% level.

Sample1	10	12	9	16	13
Sample2	9	7	12	11	11
Sample3	14	11	15	14	16

(Given the table value of F at 5% level with (2,12) d.f is 3.9)Use short cut method.

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I.

BIJU PATNAIK INSTITUTE OF IT & MANAGEMENT STUDIES

2nd SEMESTER (BATCH 2017-19)

CLASS TEST - II

BUSINESS RESEARCH METHODS (MNG-201)

Total Marks : 30 **Time: 1½ Hours**

(Answer as per the instruction given in each question)

I. Answer all the following : [5x2=10]

1. The population size is 6 then ---------- samples can be formed having sample size 3.If samples are drawn without replacement.

2. The mean weight of a random sample of size 100 from a students population is 65.8kgs.and the standard deviation is 4 kgs. 95% lower confidence limit of mean weight of the students population is----------

3. If SSB=100 and SSW =150 and V1=3,V2 =8 ,then find test statistic F is ----------

4. In a two way classification of analysis of variance ,if number of columns=4 and number of rows =3,then find degree of freedom of SST is----------

5. Standard error of (p1-p2)where p1=0.75,p2=0.5.n1=200 and n2=300 is ----------

6. If sample size=10,population standard deviation =4 and Z value at 99% confidence limit is 2.58,then find sample error

7. Find standard error of(X1-X2) where n1=n2=30 and σ1=3 and σ2=4

8. The average weight of 40 students of XIMB is 60 kg and SD is 10 kg,set up 90% upper confidence limit of total students population of XIMB

9. If P=0.5,p=0.48 and standard error of p=0.0158.Find test statistic –Z.

10. Find expected frequencies from the following(2x2)contingency table.

	A	A^C
B	20	300
B^C	80	600

II. Answer any two of the following [2X5=10]

1. An officer of the health department claims that 60% of the male population of a village comprises smokers. A random sample of 50 males showed 35 of them was smokers. Are these sample results consistent with the claim of the health officer? Use a level of significance of 0.05. (z 0.05, 1.645)

2. A courier service advertises that its average delivery time is less than 6 hours for local deliveries. A random sample of 10 for the amount of time this courier takes to deliver packages to an addressee across the town produced the following times

7, 3, 4, 6, 10, 5, 6, 4, 3,

3. The table given below shows the data obtained during an epidemic of cholera:

	Attacked	Not attacked
Inoculated	20	300
Not inoculated	80	600

Test the effectiveness of inoculation is preventing the attack of cholera.(α=0.05)(Chi-square value 5% level of significance and one degree of freedom is 3.84)

III. Answer any one of the following [**1X10=10]**

1. Three different machines are used for a production. On the basis of the output, test whether the machines are equally effective.

OUTPUT		
Machine-1	Machine-2	Machine-3
10	9	20
5	7	16
11	5	10
10	6	14

(α=0.05)(Use short cut method)(Value of F at 5% level of significance with (2,9)d.f=4.26)

2. (a) A man fishing at a particular place caught fishes in the following weight groups:

Weight (Kg)	Less than 1 kg	1-2	2-3	3-4	4-5	More than 5 Kg
Frequency	6	7	13	17	6	5

In the data compatible with the assumption the anybody fishing at a spot will catch fishes in the various weight groups in the proportions 1:1:2:3:1:1?

(Given chi-square value at 5% level of significance and 5 d.f =11.07)

(b) A dice is thrown 100 times with the following results, is the dice unbiased?

Number Tossed up	1	2	3	4	5	6
Frequency	16	20	14	10	21	10

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BIJU PATNAIK INSTITUTE OF IT & MANAGEMENT STUDIES
2nd SEMESTER (BATCH 2016-18)
CLASS TEST - II

BUSINESS RESEARCH METHODS (MNG-201)

Total Marks : 30 **Time: 1½ Hours**

(Answer as per the instruction given in each question)

I. Fill in the blanks. ***[1X10=10]***

1. If population size (N)=145 and sample size(n)=25,then population correction factor is ----------
2. The population size is 2,3,4,5,6.----------samples can be formed having sample size 3.If samples are drawn without replacement.
3. The population size is 2,3,4,5,6.----------samples can be formed having sample size 3.If samples are drawn with replacement
4. A n= 25 N=200 ,S.D=10.5,then find standard error of sample mean is ----------
5. If P=0.5,p=0.48 and standard error of p=0.0158. test statistic –Z is ----------
6. Sign test,Run test,chi-square test are known as ----------test.
7. In ----------type of test hypothesis is evaluated on the basis of observed and expected frequencies.
8. ----------test is applied in case of multiple sample cases for hypothesis testing.
9. In case of ---------- non parametric test hypothesis testing is done by(+) and(-) sign in the observation.
10. In ----------test null and alternative hypothesis are developed both for row and column.

II. Answer any two of the following: ***[5X2=10]***

1. A machine produced 20 defective articles in a batch of 400.After overhauling it produced 10 defective articles in a batch of 300.Has the machine improved?

2. The mean life time of a sample of 200 light bulbs produced by a company found to be 1000 hr. with a standard deviation of 100 hr. test the hypothesis that the mean life time of the bulbs produced in general is higher than the mean life of 970hr at 0.01 level of significance. (z=2.58) .(L=0.05)(Use Z-test)

3. A company employs a large number of typists in its head office at Bhubaneswar. It has developed a new training program for them and claims that it has increased the typing speed by 15 words per minute. A random sample of 9 typists is taken and their speed observed. The company finds that the average increase has been 17 words per minute. The estimated standard deviation is 8 words per minute. Can it be concluded that the company has made a legitimate claim? (t 8, 0.05 =1.86)

III. Answer any one of the following ***[10X1=10]***

1. ABC Co. Has purchased 3 new machines of different makes and wishes to determine whether one of them is faster than the others in producing a certain output .4 hourly production figures are observed at random for each machine and the results are given below:

Observations	Machine1	Machine2	Machine3
1	28	31	30
2	32	37	28
3	30	38	26
4	34	42	28

Use ANOVA and determine whether the machines are significantly differ in their mean speed(F.0.05(2,9)=4.26)

2. A man fishing at a particular place caught fishes in the following weight groups:

Weight(Kg)	less than 1 kg	1-2	2-3	3-4	4-5	Morethan 5 Kg
Frequency	6	7	13	17	6	5

In the data compatible with the assumption the anybody fishing at a spot will catch fishes in the various weight groups in the proportions 1:1:2:3:1:1?
(Given chi-square value at 5% level of significance and 5 d.f =11.07).

BIJU PATNAIK INSTITUTE OF IT & MANAGEMENT STUDIES
2nd SEMESTER (BATCH 2015-17)
CLASS TEST - II

BUSINESS RESEARCH METHODS (MNG-201)

Total Marks : 30 **Time: 1½ Hours**

(Answer as per the instruction given in each question)

1. Answer all the question. ***[10X1=10]***

1. Why is the problem definition stage probably the most important stage in the research process?
2. Discuss two differences between validity and reliability.
3. How does the t-distribution differ from Z-distribution?
4. State the meaning of snowball sampling?
5. Define null hypothesis?
6. What is Yate's correction?
7. Explain continuous and categorical variables.
8. How two tailed test is different from one tailed test?.
9. Write the full form of SPSS.
10. What is a Likert scale?

2. Write short notes on the following any two ***[5X2=10]***

a) The following table gives the number of good and defective parts produced by each of the three shifts in a factory. Is there any association between the shift and the equality of the products produced? Use a 5% level of significance.

Shift /time	Good	Defective	Total
Day	900	130	1030
Evening	700	170	870
Night	400	200	600
Total	2000	500	2500

b) An officer of the health department claims that 60% of the male population of a village comprises smokers. A random sample of 50 males showed 35 of them was smokers. Are these sample results consistent with the claim of the health officer? Use a level of significance of 0.05.

c) A sample of 16 MBA students of a college was taken and information was obtained on their starting salary after their appointment in a company. The mean monthly starting salary was found to be Rs. 30,200 with a standard deviation of Rs. 960. The post data on the starting salary has given a mean value of Rs. 30,000. Using a 5% level of significance, can we conclude that the average starting salary is different from Rs.30, 000?

Answer any one of the following ***[1X10=10]***

3. A die is thrown 100 times with the following results, is the die unbiased?

Number Tushed up	1	2	3	4	5	6
Frequency	16	20	14	10	21	10

4. A tea co. appoints four salesmen P, Q, R and S and observes their sales in three seasons like summer, rainy, and winter. The figures in lakhs are given in the following table. Carry out a two way ANOVA.

Seasons / Salesmen	P	Q	R	S	Total
SUMMER	36	36	21	35	128
RAINY	28	29	31	32	120
WINTER	26	28	29	29	112
Total	90	93	81	96	360

5. X co. employs a large number of typists in its head office at Bhubaneswar. It has developed a new training program for them and claims that it has increased the typing speed by 15 words per minute. A random sample of 9 typists is taken and their speed observed. The company finds that the average increase has been 17 words per minute. The estimated standard deviation is 8 words per minute. Can it be concluded that the company has made a legitimate claim?

BIJU PATNAIK INSTITUTE OF IT & MANAGEMENT STUDIES
2nd SEMESTER (BATCH 2015-17)
CLASS TEST

BUSINESS RESEARCH METHODS (MNG-201)

Total Marks : 30 **Time: 30 minutes**

(Answer as per the instruction given in each question)

1. Answer all the question. ***[10X1=10]***

1. Why is the problem definition stage probably the most important stage in the research process?
2. Discuss two differences between validity and reliability.
3. How does the t-distribution differ from Z-distribution?
4. State the meaning of snowball sampling?
5. Define null hypothesis?
6. What is Yate's correction?
7. Explain continuous and categorical variables.
8. How two tailed test is different from one tailed test?.
9. Write the full form of SPSS.
10. What is a Likert scale?

2. Answer any two of the followings: ***(2 x 10=20]***

A) The following table gives the number of good and defective parts produced by each of the three shifts in a factory. Is there any association between the shift and the equality of the products produced? Use a 5% level of significance.

Shift /time	Good	Defective	Total
Day	900	130	1030
Evening	700	170	870
Night	400	200	600
Total	2000	500	2500

B) An officer of the health department claims that 60% of the male population of a village comprises smokers. A random sample of 50 males showed 35 of them was smokers. Are these sample results consistent with the claim of the health officer? Use a level of significance of 0.05.

C) A sample of 16 MBA students of a college was taken and information was obtained on their starting salary after their appointment in a company. The mean monthly starting salary was found to be Rs. 30,200 with a standard deviation of Rs. 960. The post data on the starting salary has given a mean value of Rs. 30,000. Using a 5% level of significance, can we conclude that the average starting salary is different from Rs.30, 000?

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