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Total Number of Pages : 02

MBA
18MBA204

2nd Semester Regular Examination 2018-19

BUSINESS RESEARCH

BRANCH : MBA

Max Marks : 100

Time : 3 Hours

Q.CODE : F513

Answer Question No.1 (Part-1) which is compulsory, any EIGHT from Part-II and any TWO from Part-III.

The figures in the right hand margin indicate marks.

Part- I

Q1 Only Short Answer Type Questions (Answer All-10)

(2 x 10)

- Write Central limit theorem.
- Narrate Level of significance.
- Find sample size such that the probability of sample mean differing from population mean by not more than $\frac{1}{10}$ th of S.D is 0.95.
- A random sample of 100 articles taken from a batch of 2696 articles contains 5 defective articles. Find 99% upper confidence limit for the proportion of defective articles in the whole batch.
- If $Z = 2.58$, population S.D = 15 and sample size = 112, then find sample error.
- A simple random sample of size 16 is drawn without replacement from a finite population of 50 units. If the number of defective units in the population be 5, find standard error of p .
- If p_1 & p_2 are the proportions of two random samples of sizes 40 & 50 drawn from two populations with $p_1 = 0.05$ & $p_2 = 0.03$, then find standard error of the difference of two sample proportions.
- Two samples having sizes 8 and 10 with respective means 5 & 3. If their S.D are 3 & 4 respectively, then find standard error of difference of two sample means.
- The population size is 2,3,4,5,6. How many samples of size three can be selected, if samples are drawn without replacement from the population.
- If sample size=10, sample mean=0.24, population mean=0.25 and sample S.D = 0.02, then find test-statistic-t.

Part- II

Q2 Only Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve)

(6 x 8)

- A manufacturer claimed that at least 95% of the equipment which be supplied to a factory confirmed to specifications. An examination of a sample of 200 pieces of equipment revealed that 18 were faulty. Test his claim at $\alpha = 0.05$
- The increase in weights due to two kinds of food are given below. Can it be said that food B is better than food A at $\alpha = 0.05$?

Food A	49	53	51	52	47	50	52	53
Food B	52	55	52	53	50	54	54	53

[Table value of t at $\alpha = 0.05$ for 7 d.f is 2.36]

- The table given below shows the data obtained during an epidemic of Cholera:

	Attacked	Not attacked
Inoculated	42	232
Not inoculated	106	748

Test the effectiveness of inoculation in preventing the attack of cholera.

[Given: Chi-square value of 1 d.f & $\alpha = 0.05$ is 3.84]

- d) Weights in Kg. of 10 students are 38,40,45,53,47,43,55,48,52,49. Can we say that the variance of the distribution of weights of all students from which the above sample of 10 students are drawn is equal to 20 square Kgs?
[Chi-square value at $\alpha=0.05$ & 9d.f is 16.92]
- e) The mean breaking strength of the cables supplied by a manufacturer is 1800 with a S.D 100. By a new technique in the manufacturing process, it is claimed that the breaking strength of the cables have increased. In order to test this claim a sample of 50 cables is tested. It is found that the mean breaking strength is 1850. Can we support the claim at $\alpha=0.01$?
- f) Akash Institute claimed that all its students get 80% marks on an average in competitive test. Hence mark percentage of 10 students are selected at random as given below. Test the claim at $\alpha=0.05$ by using sign-test.

Roll No.	1	5	13	21	26	35	42	50	62	74
Marks	82	75	80	90	92	74	84	85	79	80

- g) Explain the merits and limitations of an observation method in collecting material with examples.
- h) Explain various considerations in developing a sample design.
- i) Justify that under what circumstances exploratory research design is ideal.
- j) Distinguish between qualitative and quantitative research.
- k) Explain the differences between nominal and ordinal scales.
- l) Distinguish between parametric and non-parametric tests.

Part-III

Only Long Answer Type Questions (Answer Any Two out of Four)

- Q3** A company appoints 4 salesmen and observes their sales in 3 seasons. The figures (in lacs) are given in the following table. **(16)**

Season	Salesmen			
	A	B	C	D
Summer	36	36	21	35
Winter	28	29	31	32
Rainy	26	28	29	29

Carry out an analysis of variance at $\alpha=.05$.

[Table value of F at $\alpha=.05$ for d.f (6,3) is 8.94 and for d.f (6,2) is 19.33]

- Q4** The following is an arrangement of the BPL and APL card holders, who are standing in queue before a control shop for their rations: **(16)**

BBBBBBBBBAAAAABBBBAAABBBBBBAABBBAA

Where B=BPL Cards & A=APL Cards.

Use one sample run test at $\alpha=.05$ and test whether cards are arranged at random by the control dealer.

[Table value of Z at $\alpha=.05$ at two tailed test=1.96]

- Q5** What is brilliant working hypothesis? Describe role, characteristics, types and sources of hypothesis. **(16)**

- Q6** Critically appreciate on different types of report and comment on essentials of a good report. **(16)**