**Registration no:** | | | | | | | | | | |

**Total Number of Pages: 02** **MBA**

**15 MNG 201**

# 2nd Semester Regular/Back Examination - 2015-16
# BUSINESS RESEARCH METHODS
# Q CODE : W 497
# Time: 3 Hours
# Max marks: 100

**Answer Question No.1 & 2 which are compulsory and any four from the rest.**

**The figures in the right hand margin indicate marks.**

Q.1 Answer the following questions: (2x10)

a) _____ research design is ideal to gain an insight into the problem and Professor R.A. Fisher is associated with _____ research design.

b) _____ sampling method is adopted when population nature is heterogeneous and _____ sampling method is used in statistical quality control.

c) Financial institutions prepare their annual report in the form of _____ and mathematicians write result of investigation under _____.

d) Publications by research institutes are _____ source of data and daily production report is a _____ data.

e) Coefficient of variability is measured under _____ scale and university registration numbers assigned to students are examples of _____ scale.

f) _____ is a statistical measure computed from sample data and _____ is a statistical measure computed from population data.

g) Polling interview is an example of _____ interview and telephonic interview is conducted in industrial survey particularly in _____ region.

h) _____ test is used to judge the randomness of a sample and test for goodness of fit is done under _____ test.

i) _____ sampling is used in marketing research study and _____ sampling is useful in public opinion survey and to audit accounts.

j) Analysis of variance is performed by _____ table and test for equality of three or more population means is done using _____ distribution.

Q.2 Answer the following questions: (2x10)

a) If population size (N) = 145 and sample size (n) = 25, then find population correction factor.

b) The population size is 2, 3, 4, 5, 6. How many samples can be formed having sample size three, if samples are drawn without replacement?

c) A simple random sample of size 25 is drawn from a finite population consisting of 200 units. If the population standard deviation is 10.5, find standard error of sample mean when the sample is drawn with replacement.

d) A simple random sample of size 16 is drawn without replacement from a finite population consisting of 50 units. If the number of defective units in the population be 5, find standard error of the sample proportion of defectives.

e) The mean weight of a random sample of size 100 from a student's population is 65.8 Kgs. and the standard deviation is 4 Kgs. Set up 95% lower confidence limit of the mean weight of the student's population.

f) If sample error = 2, population standard deviation = 10 and Z-Value at 95% confidence limits = 1.96, then find sample size.

g) Find $b_{12.3}$ if $SD_1 = 5$, $SD_2 = 4$ and $r_{12} = 0.7$, $r_{13} = 0.6$ & $r_{23} = 0.5$.

h) Find expected frequencies form the following ( 2 x 2) contingency table.

| | A | $A^C$ |
|---|---|---|
| B | 20 | 300 |
| $B^C$ | 80 | 600 |

i) If SSB = 10, SSW = 24, Sample size (n) = 3, population size (N) = 14, find test – statistic – F.

j) If P = 0.5, Þ = 0.48 and standard error of Þ = 0.0158. Find test-statistic – Z.

Q.3 a) What is research design ? Explain the features of research design and critically appreciate about experimental research design. (15)

Q.4 a) What is mailed questionnaire ? Explain the essentials of a good questionnaire. (7)

b) Write short note of the following : (8)

i) Stratified sampling.

ii) Multistage sampling.

Q.5 a) In a sample of 600 parts manufactured by a factory, the number of defective parts were found to be 45. The company however, claimed that only 5 percent of their product is defective. Is the claim justified ?$L$ = 5% (use Z – test) (8)

b) Explain four types of scaling techniques with suitable examples. (7)

Q.6 a) Out of 800 persons, 25% were literate and 300 had travelled beyond the limits of their district. 40% 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 relation between travelling and literacy. (10)

[Given : The table value of chi-square at 5% level with 1 d.f is 3.84].

b) Briefly discuss about factor analysis. (5)

Q.7 Three samples each of size 5, were drawn from three uncorrelated normal populations with equal variances. Test the hypothesis that the population means are equal at 5% level. (15)

| | | | | | |
|---|---|---|---|---|---|
| Sample I | 10 | 12 | 9 | 16 | 13 |
| Sample II | 9 | 7 | 12 | 11 | 11 |
| Sample III | 14 | 11 | 15 | 14 | 16 |

[Given : The table value of F at 5% level with (2, 12) d.f. is 3.89] (Use shortcut method)

Q.8

a) What is research report ? (10)
Describe in details about structure of research report.

b) Find multiple regression equation of $X_3$ on $X_1$ and $X_2$ from the following data : (5)
$SD_1 = 5$, $SD_2 = 4$, $SD_3 = 2.5$ and $r_{12} = 0.7$, $r_{13} = 0.6$ & $r_{23} = 0.5$
(SD = Standard Deviation).