Seat No: _____ Enrollment No:_____

GUJARAT TECHNOLOGICAL UNIVERSITY

M E Semester-II Examination JULY 2012

Subject code: 1721408

Subject Name: RESEARCH METHODOLOGY

Date: 14/07/2012 Time: 10.30 a.m. To 13.00 p.m.

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q1 a) Briefly Describe the different steps involved in a research process **10**
b) Write a short note on : Criteria of Good Research **04**

Q2 a) Describe fully the techniques of defining a research problem **07**
b) Write a short note on **07**
i. Components of a research Problem
ii. Rephrasing the research Problem

OR

a) Write a short note on Experience Survey. Explaining fully its utility in exploratory research studies **07**
b) Explain the meaning and significance of a research Design **07**

Q3 Define Sampling. Under what circumstances we would recommend: **14**
a) A Probability Sample
b) Non probability Sample
c) Stratified sample
d) A cluster Sample

OR

a) A Population is divided into three strata so that N1=5000, N2=2000 and N3= 3000. Respective standard deviations are: **07**
$\sigma 1 = 15$, $\sigma 2 = 18$ and $\sigma 3 = 5$.
How should a sample of size n=84 be allocated to the three strata, if we want optimum allocation using disproportionate sampling design?
b) How would you differentiate Simple Random sampling and complex random sampling **07**

Q4 a) Explain Ratio Scaling method and its advantage over the other measurement scaling techniques. **07**
b) Describe the different methods of scale construction, point out its merits and demerits of each. **07**

OR

a) Clearly explain the difference between collection of data through questionnaires and schedules. **07**
b) Write a short note on the following **07**
i. Latin-Square design
ii. F-ratio and its interpretation.

Q5 a) Set up an analysis of variance table for the following two-way design without repeated values result: **07**

Per Acre Production Data of Wheat

(in metric tones)

Varieties of seeds	A	B	C
Varieties of fertilizers			
W	6	5	5
X	7	5	4
Y	3	3	3
Z	8	7	4

Also state whether variety difference are significant at 5% level.(5% F-limit for F(2.6)= 5.14 ; F(3,6)= 4.76.)

b) What is meant by Multivariate? Explain how it differs from Bivariate analysis **07**

OR

a) Explain the mechanics of writing a Research Report. **07**

b) Briefly Describe the different types of Report **07**