

PGDM-RM 2014 - 16
Research Methodology
Subject Code- RM-202

Trimester – II, End-Term Examination: December 2014

Time allowed: 2 hrs 30 min

Max Marks: 50

Roll No: _____

Instruction: Students are required to write Roll No on every page of the question paper, writing anything except the Roll No will be treated as **Unfair Means**. In case of rough work please use answer sheet.

Sections	No. of Questions to attempt	Marks	Marks
A	3 out of 5(Short Questions)	5 marks each	3*5 = 15
B	2 out of 3 (Long Questions)	10 marks each	2*10= 20
C	Compulsory Case Study	15 marks	15
		Total Marks	50

Section A

- A1. What do you understand by Scientific Methods in Research? List out its differences with non – scientific methods. What kind of difficulties can a manager face in applying scientific methods to marketing research?
- A2. Why data from secondary sources are essential to be tapped before a researcher starts collecting primary data? What are the advantages & disadvantages of using the secondary data?
- A3. "Research Design in exploratory studies must be flexible but in descriptive studies, it must minimize bias and maximize reliability." Discuss.
- A4. Explain briefly with proper examples:
 - a) Sampling and Non sampling errors
 - b) Associative analysis and predictive analysis
- A5. What is reliability? How a researcher can handle the issue of reliability?

Section B

A grocery store chain surveyed a set of customers concerning their purchasing habits. The data file contains 1037 observation, data fields (variables) used are:

Sl.	Variable	Description	Value Range
1	storeid	Store ID	None
2	hlthfood	Health food store	0 No 1 Yes
3	size	Size of store	1 Small 2 Medium 3 Large
4	org	Store organization	1 Emphasizes produce 2 Emphasizes dairy 3 Emphasizes bakery 4 No Emphasis
5	ncust	Number of customers	None
6	custid	Customer ID	None
7	gender	Gender	1 Male 2 Female
8	shopfor	Who shopping for	1 Self 2 Self and spouse 3 Self and family
9	veg	Vegetarian	0 No 1 Yes
10	style	Shopping style	1 Biweekly, in bulk 2 Weekly, similar items 3 Often, what's on sale
11	usecoup	Use coupons	1 No 2 From newspaper 3 From mailings 4 From both
12	amtspent	Amount spent	None

B1. Given the survey results and how much each customer spent in the previous month, the store wants to see if the frequency with which customers shop is related to the amount they spend in a month, controlling for who they are shopping for.

SPSS output for Univariate Analysis of Variance is given below.

Between-Subjects Factors

		Value Label	N
Who shopping for	1	Self	431
	2	Self and spouse	367
	3	Self and family	239
Shopping style	1	Biweekly; in bulk	230
	2	Weekly; similar items	616
	3	Often; what's on sale	191

Tests of Between-Subjects Effects

Dependent Variable: Amount spent

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	4.006E6 ^a	8	500696.066	117.666	.000	.478
Intercept	1.112E8	1	1.112E8	2.614E4	.000	.962
shopfor	2764048.945	2	1382024.473	324.782	.000	.387
style	294370.022	2	147185.011	34.589	.000	.063
shopfor * style	5305.654	4	1326.413	.312	.870	.001
Error	4374386.486	1028	4255.240			
Total	1.501E8	1037				
Corrected Total	8379955.016	1036				

a. R Squared = .478 (Adjusted R Squared = .474)

- Formulate all possible hypotheses for univariate ANOVA and infer conclusions.
- For Experimental Design explain Replication, Randomization and Local Control

B2. Answer the following

- Which test you will recommend if the grocery store wants to know if use of coupons by the customers is independent of size of the store.
- Which test you will recommend if the grocery store wants to calculate if there is any significant difference in amount spent between males and females.
- Which test you will recommend if the grocery store wants to know that on an average amount spent by customers is more than Rs. 600
- What is the relevance of Levene's Test in t-test and F-test

B3. Write all the steps of testing of hypothesis for the below data analysis :

Group Statistics					
	Health	N	Mean	Std. Deviation	Std. Error Mean
Number of customers	No	601	1572.84	212.840	8.682
	Yes	436	1297.27	169.438	8.115

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Number of customers	Equal variances assumed	5.842	.016	22.376	1035	.000	275.578	12.316	251.411	299.744
	Equal variances not assumed			23.190	1.028E3	.000	275.578	11.884	262.258	298.897

SECTION C

Organisation ABC has been facing with high employee turnover for last few years. The management asked the HR department to submit a comprehensive report on the employee attrition problem. The HR department studied the exit questionnaire of all employees who left the organization for the last two years. They came across many reasons or factors leading to employee attritions in the organization. But the data from exit interview questionnaire was not too useful for analyzing the attrition phenomena in depth. Firstly, it suggested a lot of reasons and working on each factor individually was not possible. Hence, the HR department decided to use statistical research and primary data to understand the issue of attrition.

a) Conceptualize the Research Process for the given case.

While doing the task HR department being across the following data, the data file contains 474 observations, data fields (variables) used are:

Sl.	Variable	Description	Type
1	id	Employee Code	Numeric
2	gender	Gender	String
3	bdate	Date of Birth	Date
4	educ	Educational Level (years)	Numeric
5	jobcat	Employment Category	String
6	salary	Current Salary	Dollar
7	salbegin	Beginning Salary	Dollar
8	jobtime	Months since Hire	Numeric
9	prevexp	Previous Experience (months)	Numeric

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.897 ^a	.804	.803	\$7,586.187	1.932

a. Predictors: (Constant), Previous Experience (months), Months since Hire, Beginning Salary

b. Dependent Variable: Current Salary

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.109E11	3	3.696E10	642.151	.000 ^a
	Residual	2.705E10	470	5.755E7		
	Total	1.379E11	473			

a. Predictors: (Constant), Previous Experience (months), Months since Hire, Beginning Salary

b. Dependent Variable: Current Salary

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1 (Constant)	-10266.629	2959.838		-3.469	.001					
Beginning Salary	1.927	.044	.888	43.435	.000	.880	.895	.887	.998	1.002
Months since Hire	173.203	34.677	.102	4.995	.000	.084	.225	.102	1.000	1.000
Previous Experience (months)	-22.509	3.339	-.138	-6.742	.000	-.097	-.297	-.138	.998	1.002

a. Dependent Variable: Current Salary

- b) Interpret R, R Square and Adjusted R Square; is the model statistically significant, comment with proper explanation?
- c) Would you expect multicollinearity among the independents? Why or why not? What does the "Tolerance" and VIF in the collinearity statistics indicate? Does it support your expectation?