PGDM-IB 2018 - 20
Business Research Methods
Subject Code- IB-305
Trimester – III, End-Term Examination: March 2019

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. Discuss the way in which exploratory, descriptive and causal research designs differ? Give at least one vivid example of each.

A2. For a marketing research explain 'Validity' and 'Reliability'.

A3. HR manager of XYZ Company wants to determine if there is any association between Employment category and Minority classification. In the company, Employment category has three levels-Senior level, Mid level and Junior level and Minority classification has two levels- General and Reserved. For this she collected the data of 474 employees and run a statistical analysis. The SPSS output of the statistical analysis is given below:

Employment Category * Minority Classification Crosstabulation				
Count				
		Minority Classification		
		General	Reserved	Total
Employment Category	Junior level	276	87	363
	Mid level	14	13	27
	Senior level	79	5	84
Total		370	104	474

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	26.172a	2	.000
Likelihood Ratio	29.436	2	.000
Linear-by-Linear Association	9.778	1	.002
N of Valid Cases	474		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.92.

Formulate the appropriate hypothesis and interpret the result from the given SPSS output table.

A4. Design a complete questionnaire to evaluate the expectation of customers for an app based cab services.

A5. Explain briefly with proper examples:

i. Conclusive Research

ii. Review of literature

Section B

Small Bazar (an Indian retail store) surveyed a set of customers concerning their purchasing habits. The data file contains 537 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	gender	Gender	1 Male 2 Female

5	veg	Vegetarian	0 No 1 Yes
6	usecoup	Use coupons	1 No 2 From newspaper 3 From mailings 4 From both
7	amtspent	Amount spent	None

B1.Company wants to take decision making use of inferential statistics. Following statistical test was run for analyzing the collected data. Write all the steps of hypothesis testing for the below SPSS output table:

Group Statistics

	Vegetarian	N	Mean	Std. Deviation	Std. Error Mean
Amount spent	No	301	41441.78	19499.214	1213.968
	Yes	236	26031.92	7558.021	514.258

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
Amount spent	Equal variances assumed	119.669	.000	10.945	472	.000	15409.862	1407.906	12643.322	18176.401
	Equal variances not assumed			11.688	344.262	.000	15409.862	1318.400	12816.728	18002.996

B2. Given the survey results and how much each customer spent in the previous month, the store wants to see if the size of the store is related to the amount they spend in a month. SPSS output for 1 way Analysis of Variance is given below.

Test of Homogeneity of Variances

Amount spent (in Rs)

Levene Statistic	df1	df2	Sig.
59.733	2	471	.000

ANOVA

Amount spent (in Rs)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	8.944E10	2	4.472E10	434.481	.000
Within Groups	4.848E10	471	1.029E8		
Total	1.379E11	473			

Robust Tests of Equality of Means

Amount spent (in Rs)

	Statistica	df1	df2	Sig.
Welch	162.200	2	117.312	.000
Brown-Forsythe	306.810	2	93.906	.000

a. Asymptotically F distributed.

a) Formulate hypotheses for ANOVA and infer conclusions.

b) Formulate hypothesis for testing homogeneity of variances and infer conclusions.

B3. Answer the following

a) Which test you will recommend if the store wants to know if use of coupons by the customers is independent of size of the store.

b) Which test you will recommend if the store wants to calculate if there is any significant difference in amount spent between males and females.

c) Which test you will recommend if the store wants to know that on an average amount spent by customers is more than Rs. 600

d) What is the relevance of Levene's Test in t-test and F-test

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 (in Rs.)	Numeric
7	salbegin	Beginning Salary (in Rs.)	Numeric
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) Mention four assumptions to be checked before fitting Regression model.

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