PGDM (IB) 2017 - 19
Business Research Methods
Subject Code- IB-306
Trimester – III, End-Term Examination: March 2018

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 points must be kept in mind while defining a research problem? Why does secondary research appear before primary research in the typical research process diagram? Explain briefly.

A2. Outline a research design using observation for each of the following situations:

i. A state government wishes to determine the driving public's use of seat belts.

ii. A fast-food restaurant manager wishes to determine if they serve their customers as quickly as their competitors. Design a complete questionnaire to measure consumer satisfaction with an airline.

A3. Explain internal validity and external validity in experimentation? How can a researcher control the threats to internal and external validity in an experiment?

A4. It is usually stated that managers should be good researchers. Why should a manager know about research when the job entails managing people, product, events, environment etc. Elaborate with a suitable example. 19

A5. You have been approached by the brand manager for a brand of fruit juice in the market. He wishes to conduct a research to find out the current perception of consumers about your brand vis-à-vis other brands (competitors). He also wants to assess buying behavior and whether he should reposition his brand or launch line extensions or a completely new brand of fruit juice. Write a research proposal for this study, including a general idea of the research process, methodology, sampling plan and application of statistical tools. Mention suitable assumptions wherever applicable.

Section B

An industry analyst would like to predict automobile sales from a set of predictors. The data file contains 154 observation, data fields (variables) used are:

Sl.	*Variable*	*Description*	*Type*
1	Model	Model	String
2	Type	Vehicle type	0 Car 1 Truck
3	Resale	4-year resale value	Numeric
4	Price	Price in thousands	Numeric
5	engine_s	Engine size	Numeric
6	Horsepow	Horsepower	Numeric
7	Wheelbase	Wheelbase	Numeric
8	Width	Width	Numeric
9	Length	Length	Numeric
10	curb_wgt	Curb weight	Numeric
11	fuel_cap	Fuel capacity	Numeric
12	Mpg	Fuel efficiency	Numeric

B1 Below is the output for the SPSS Independent t-test procedure to compare the means of two groups.

Group Statistics

	Condition	N	Mean	Std. Deviation	Std. Error Mean
4 year resale value	Car	82	40.00	9.293	2.683
	Truck	72	47.00	11.029	3.184

20

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
4 year resale value	Equal variances assumed	.782	.386	-1.684	22	.107	-7.000	4.163	-15.634	1.634
	Equal variances not assumed			-1.681	21.38	.107	-7.000	4.163	-15.634	1.634

Formulate all possible hypotheses and infer conclusions.

B2 Further the analyst, calculated the following

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Fuel capacity	17.958	154	3.9125	.3153
	Fuel efficiency	23.84	154	4.283	.345

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Fuel capacity & Fuel efficiency	154	-.802	.000

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pair 1	Fuel capacity - Fuel efficiency	-5.8857	7.7790	.6268	-7.1241	-4.6473	-9.389	153	.000

a) State and interpret the hypothesis for paired sample correlation.

b) State and interpret the hypothesis for paired sample test.

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

B3 Following are the SPSS regression outputs, comment on the regression model. 21

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.970[a]	.940	.938	2.882328

a. Predictors: (Constant), Price in thousands, Length, Fuel efficiency, Curb weight

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14693.646	4	3673.411	442.163	.000[a]
	Residual	930.475	112	8.308		
	Total	15624.121	116			

a. Predictors: (Constant), Price in thousands, Length, Fuel efficiency, Curb weight

b. Dependent Variable: 4-year resale value

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	27.105	5.634		4.811	.000					
	Length	-.070	.028	-.083	-2.486	.014	.025	-.229	-.057	.474	2.111
	Curb weight	-3.447	1.032	-.177	-3.341	.001	.363	-.301	-.077	.189	5.300
	Fuel efficiency	-.254	.109	-.096	-2.328	.022	-.399	-.215	-.054	.311	3.216
	Price in thousands	.832	.023	1.014	36.349	.000	.955	.960	.838	.683	1.465

a. Dependent Variable: 4-year resale value

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

SECTION C

UP Technical University, Lucknow

UP Technical University (UPTU), Lucknow, came into existence in the year 2000 by the UP Government to control and run the technical education in the state. Very soon, UPTU started registering success and improved the educational standards and facility in the state as compared to the other states. Students from UP, who used to go to the other states for technical education, started developing faith and confidence in UPTU seeing its success and its better education facilities in a controlled and properly supervised manner. This resulted in higher availability of students in the institutes of UPTU and prevented the migration of UP

22

students to the other states for technical education. UPTU became successful in not only attracting students of UP but also students from other states. It was a boon in a new era of technical education in UP. Seeing the growth opportunities a large number of new entrepreneurs and investors started opening institutes and UP became one among the best technical education provider among the states. Very soon UPTU was controlling over 500 technical colleges in UP. Seeing the difficulties arising in the control and administration of affiliated institution, it was decided to divide UP Technical University into two universities in 2009 viz. Mahamaya Technical University and Gautam Budha Technical University in order to keep on providing better technical education in a control manner. In year 2010 both the universities were set up and started functioning.

In the year 2010 a large number of students appeared for entrance examination into different technical courses like B.Tech., MBA, MCA, B.Pharma, Hotel Management and so on but surprisingly, in counselling only 45% of the candidates appeared, resulting in a large number of vacant seats in many technical institutions at a stage when country was recovering from the recession.

Questions

1. In your opinion what are the possible reasons for a sudden change in the behavior of students for admission in UPTU?
2. Can you design a suitable research methodology to analyze the problem?
3. Suggest some remedial measures for UPTU to maintain its position as an education leader.

23