স্কুল অব বিজনেস

Bangladesh Open University
BBA Program
Semester: 212 (8th Level- AIS)

Course Title: Business Research Methods   **Date: November 17, 2023**

Instructions
➢ Answer the all questions in your own handwriting on A4 size white paper.
➢ Fill-in the cover page of your assignment with care.
➢ Enclose the photocopy of your ID Card with the assignment (next to the cover page).
➢ Don't make spiral binding. Instead, make soft binding.
➢ Submit the assignment to the respective course tutor and ensure his/her signature on your Assignment Acknowledgement Form (see page#4 of Semester Calendar).

Questions

1. (a) "The purpose of research is to solve business problems". Do you agree? Explain
   (b) Describe the characteristics of scientific research and explain why each of these is important.
   (c) What is the difference between a research problem and a research hypothesis?
   (d) Explain the concept of measurement and describe the characteristics of the four scales of measurement.

2. (a) How do propositions and hypotheses differ?
   (b) How do concepts differ from variables?
   (c) Define business opportunity, business problem and symptoms. Give an example of each as it applies to a university business school.
   (d) What is construct validity? Discuss participant reactivity and researcher effects as threats to construct validity.

3. (a) Describe the differences between a probability sample and a nonprobability sample.

   (b) Jeff Bollinger of Prudential Realtors has 20 residential listing under contract. The following table shows the number of days each of these 20 houses has been on the market as of today.

20	21	2	17	35	21	40	54	52	24
40	53	46	10	42	11	37	62	21	76

   Required:
   (i) Calculate the mean for this population.
   (ii) Calculate the sampling error using the first five homes in the first row as your sample.
   (iii) Calculate the sampling error using all 10 homes in the first row as your sample.
   (iv) How does increasing the sample size affect the sampling error?
   (v) Using a sample size of 5, what is the largest sampling error that can be observed from this population?

4. Best Buy would like to investigate the linear relationship between the selling price of a Canon Power Shot digital camera and the demand for it, The following table shows the weekly demand for the camera in one particular market along with the corresponding price:

Demand	Price ($)	Demand	Price ($)
16	300	11	340
19	310	12	350
14	320	8	360
13	315		

Required:

(a) Determine the sample correlation coefficient between the selling price and the demand for this camera.

(b) Using $\alpha = 0.10$ and using the above data, test if the population correlation coefficient between the selling price and the demand for the camera is less than zero. What conclusions can you draw?

5. Suppose One of the Faculty member recorded the attendance of his students in a Research Methodology class because he wanted to investigate the relationship between the number of classes they missed and their final grades. The following table shows this data for a random sample of nine students.

Missed Classes	Final Grade	Missed Classes	Final Grade
4	81	2	84
7	79	0	90
2	93	5	86
5	70	2	95
0	96		

Required:

(a) Calculate the sample covariance.
(b) Calculate the sample correlation coefficient.
(c) Describe the relationship between x and y.

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Questions

1. (a) What is a significance level? How does a researcher choose a significance level?

    (b) Distinguish between Type I and Type II error.

    (c) Suppose the Government Aviation Administration would like to compare the on-time performances of different airlines on domestic, nonstop flights. The following table shows three different airlines and the frequency of flights that arrived early, on time, and late for each:

Status	US Bangla	Novo Airlines	Regent Airlines
Early	20	24	22
On time	60	55	50
Late	25	30	14

Required:

(i) Using $\alpha = 0.05$, perform a chi-square test to determine if on-time performance and airline are independent of one another.

(ii) What conclusions can be made based on your results?

2. (a) What is the difference between one-way and two-way ANOVA tests?

    (b) Suppose Consumer Reports would like to conduct a study comparing the prices of televisions made by different manufactures. The following data show the prices of a random sample of televisions for various screen sizes.

Size	LG ($)	Panasonic ($)	Samsung ($)	Insignia ($)
32″	450	450	600	450
37″	700	1,000	1,000	600
42″	1,000	750	600	500
46″	1,300	700	1,300	900
50″	1,600	1,400	1,300	700
55″	1,900	1,500	2,200	1,100

Required:

Using a one-way ANOVA and $\alpha = 0.05$, test to see if a difference exists in the average prices of the brands.

3. (a) Explain the value of a literature review using multiple sources.
   (b) Why should you conduct a literature review? That is, what specific, useful, pieces of information might you obtain from your research?
   (c) Discuss the advantages of using academic books during your review of the scientific literature?
   (d) Describe the important characteristics of and distinctions between bar graphs, histograms, line graphs, and scatterplots.