



**INSTITUTE OF MATHEMATICAL SCIENCES
END OF SEMESTER EXAMINATION
BACHELOR OF BUSINESS SCIENCE
BSA 3216/BSE 3214/BSF 3218: RESEARCH METHODS**

DATE: 13th December 2022

Time: 2 Hours

Instructions

Answer question one and any other two questions

Total marks: 40

Questions one (20 marks)

- a) Distinguish between the following
- (i) Validity and reliability
 - (ii) Random selection and random assignment
 - (iii) Census and a sample
 - (iv) Statistic and a parameter **[8 marks]**
- b) Briefly state any four roles of hypotheses **[4 marks]**
- c) State on any four ethical issues that you would need to consider as you plan for a research project involving human subjects **[4 marks]**
- d) The observer-participant relationship is an important consideration in the design of observation studies. What kind of relationship would you recommend in each of the following cases?
- (i) Observation of retail shoppers by a researcher who is interested in determining customer purchase time by type of goods purchased.
 - (ii) Observation of a focus group interview by a client
 - (iii) Effectiveness of individual farmworker organizers in their efforts to organize employees of coffee growers
 - (iv) Observation of meetings of a hotel workers union by a researcher who is a representative of the union and regularly attends the meetings. **[4 marks]**

Question 2 (10 marks)

- (a) Mercedes Benz has a self-driving car capable of 120km per hour speed. You have to keep your hands on the wheel in this E-class sedan to operate the self-driving feature, but the car reads and responds to speed limits and is capable of stopping or swerving to avoid obstructions in the 60-75 km range, either physical or human. Any liability for use of the technology still resides with the driver. How would you use survey research to determine whether the public is ready for such a car? **[5 marks]**
- (b) *Do macroeconomic variables have an impact on the stock market price direction?* Briefly explain why this is not a good research question and restate the question to one that would lend itself to investigation through the scientific method. **[5 marks]**

Question 3 (10 marks)

- (a) Give an example of a question within your area of study, Actuarial Science, Financial Economics or Financial Engineering, that would best be answered by an experiment [1 mark]
- (b) State a possible hypothesis for the experiment and [2 marks]
- (c) Provide a brief outline on how you would carry out the experiment, clearly stating your dependent and independent variables and how the treatment would be assigned. [7 marks]

Question 4 (10 marks)

- (a) In May 2017, LAX, the world's fourth largest airport, relocated 15 airlines in a three-night (five hours per night) period in order to accommodate Delta's expansion. During the period Delta operated more than 200 flights a day out of four terminals. In terminal 2 and 3, everything moved. It relocated ticket counters, kiosks, computer systems, and more than 1000 signs. The process was in the planning stages for 15 months. Delta picked up the tab for the move for all airlines involved. If you were Delta, what observation research would you have conducted during this massive endeavour to judge the effectiveness of the move planning? Explain why your proposed observation research would be appropriate for this scenario. [5 marks]
- (b) A larger supermarket chain got a very mixed reaction when it announced that after 30 years it was eliminating greeters from its overnight shift in more than 3800 outlets, redefining the role of day shift greeters, and moving them further into the shop and away from the door. What observation research would you have conducted to reach these decisions. Explain why your proposed observation research would be appropriate for this scenario. [5 marks]

Question 5 (10 marks)

- (a) "*The crucial problem with quantitative research is the failure of its practitioners to address adequately the issue of meaning*" Discuss [5 marks]
- (b) Briefly describe a research problem that would be best addressed by a mixed methods approach and explain why that would be the best approach. [5 marks]