UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER 2011

TITLE OF PAPER	:	RESEARCH METHODS
COURSE CODE	:	ST332
TIME ALLOWED	:	2 (TWO) HOURS
REQUIRMENTS	:	NONE
INSTRUCTIONS	:	ANSWER <u>BOTH</u> QUESTIONS IN PART A AND ANY <u>THREE</u> QUESTIONS IN PART B. ALL QUESTIONS CARRY EQUAL MARKS.

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PART A: ANSWER BOTH QUESTIONS:

QUESTION ONE.   [4 x 5 = 20 marks]

For each of the following problems, three possible conclusions are given. Choose the most correct one and justify your choice:

1.1   A CEO announces at the annual shareholders meeting that the new see-through packaging for the company's flagship product has been a success. In fact, he says, "There is a strong correlation between packaging and sales." Criticize this statement on statistical grounds.

> (a) Only a strong positive correlation between packaging and sales can indicate a success.
> (b) These two variables are not suitable for computing correlation coefficient.
> (c) The CEO is right. Any strong correlation (positive or negative) between packaging and sales can indicate a success.

1.2   A corporate executive reports the results of an employee satisfaction survey, stating that 52% of employees say they are either "satisfied" or "extremely satisfied" with their jobs, and then says "the margin of error is plus or minus 4%." Explain what that means.

> (a) By including margin of error, the executive expresses his dissatisfaction about the estimate of 52%.
> (b) The value of the sample statistic lies between 48% and 56%.
> (c) The value of the population parameter is within 4% of his estimate.

1.3   You'd like to take a survey from a sample of all the Catholic Church members in your city to assess the market for a DVD about the pope's visit to Africa. A list of churches shows that 17 Catholic churches within your city limits. Rather than try to obtain a list of all members of all these churches, you decide to pick 3 churches at random. For those churches, you'll ask to get a list of all current members and contract 100 members at random.

> (a) This sample was drawn using multi-stage non-probability sampling.
> (b) This sample was drawn using multi-stage probability sampling.
> (c) This sample was drawn using simple random sampling.

1.4   Researchers waited outside a bar they had randomly selected from a list of such establishments. They stopped every 10th person who came out of the bar and asked whether he or she thought drinking and driving was a serious problem. The findings from this study is

> (a) acceptable, because a probabity sampling method was used.
> (b) unacceptable, because only one bar was selected at random.
> (c) unacceptable, because the findings was not unbiased.

1.5   A researcher desires to know whether the typing speed of a secretary (in words per minute) is related to the time (in hours) that it takes the secretary to learn to use a new word-processing program. She analyzed the data collected from a sample of 12 secretaries and found the regression equation, $y = 14.086 - 0.137x$ and the coefficient of determination, $R^2 = 0.919$. Therefore, the researcher concludes that

(a) The learning time and typing speed have strong positive correlation.
(b) The learning time and typing speed have strong negative correlation.
(c) We do not have sufficient information to conclude about the relation between learning time and typing speed.

QUESTION TWO.   [9 + 6 + 3 + 2 marks]

A local cable TV company, Pacific TV (PTV), with customer in 15 towns is considering offering high-speed Internet service on its cable lines. Before launching the new service they want to find out whether customers would pay the E500 per month that they plan to charge. The research officer of PTV has prepared several alternative plans for assessing customer demand. Her proposed plans are:

A. Put a big ad in the news paper asking people to log their opinion on the PTV website.
B. Randomly select one of the towns and contract every cable subscriber by phone for their opinion.
C. Send an opinion questionnaire to each customer and ask them to fill it out and return it with their monthly subscription.
D. Randomly select 20 customers from each town. Send them an opinion questionnaire to each selected customer and ask them to fill it out and return it with their monthly subscription. Follow up with a phone call if they do not return the questionnaire within the specified time.

The CEO of PTV selected one of the above plans-and requested the research officer to conduct the survey. After the survey, she found that 63% of the customers would pay the E500 monthly subscription. Based on the above facts, answer the following questions:

State the following for the above study

(a)   State the Parameter and the Statistic of the survey.
(b)   What is the Population and its size (known/unknown). If the size is known, specify.
(c)   State the names of the sampling methods and their sizes (known/unknown) with respect to all four plans. If the size is known, specify.
(d)   State the sampling frame(s) required in each of those four plans.
(e)   Which plan would be the most representative sampling plan?
(f)   The CEO decided in favour of the plan C; explain the difficulties of getting 100% response rate.
(g)   Suppose you are asked to do the same survey, which plan will you choose? Explain your answer.

PART B: ANSWER ANY THREE QUESTIONS

QUESTION THREE.   [10 + 10 marks]

3.1   Discuss the importance of literature review while writing a research proposal.

3.2   State and discuss the common weaknesses in research proposal.

QUESTION FOUR.   [10 + 10 marks]

4.1   State and discuss the different component of research report.

4.2   Discuss the different principles of interpretation of the research findings.

QUESTION FIVE.   [10 + 10 marks]

5.1   Define Simple Random Sampling and Stratified Random Sampling. Discuss their properties with respect to similarities and differences.

5.2   Compare Written Questionnaires mode over Personal Interviews mode of data collection with respect to advantages and disadvantages.

QUESTION SIX.   [20 marks]

Compare the following pairs of terms:

6.1   Sampling error and Non-sampling error.
6.2   Data Processing and Data Analysis.
6.3   Quota Sampling and Cluster Sampling.
6.4   Purposive Sampling and Accidental Sampling.
6.5   Research Designs and Research Methods.