**CATHOLIC UNIVERSITY IN ZIMBABWE**

**HOLY TRINITY COLLEGE**

**FACULTY OF THEOLOGY**

**BACHELOR OF THEOLOGY HONOURS DEGREE**

**YEAR 1: SECOND SEMESTER EXAMINATION**

**HTC906: RESEARCH METHODS 2**

**DATE: THURSADY, 14 MAY TIME: 2 HOURS**

**INSTRUCTIONS**

* Answer **all** questions in section A and any **one** question in section B.
* Start each question on a **fresh page**.
* Write on **both sides** of the writing paper.

**Section A**

1. a.Discuss the rationale for sampling. {5}

b**.** A typing teacher believes that a different arrangement of the typing keys will promote faster typing. Twenty secretarial trainees, selected from a large business school participate in an experiment designed to test this belief. Ten of the trainees learn to type on the conventional key-board. The other ten are trained using the new arrangement of keys. At the end of the training period, the typing speed in words per minute of each trainee is measured. The mean typing speeds are then calculated for both groups and compared to determine if the new arrangement has had an effect. In this experiment specify the following

i. The independent variable ii. The dependent variable iii. The sample iv. The population v. The data vi. The statistic{6}

c. Interval Frequency

20 - 29 17 30 - 39 27 40 - 49 15 50 - 59 6 60 - 69 73

Using the above data compute the following

1. Measures of central tendency, {7}

d. Identify whether the following is a continuous or discrete variable.

i. Number of women in a class ii. Percentage of women in a class iii. Speed of runners in your class iv. Time of day v. Age of subjects in an experiment {5}

e. Compare and contrast a cohort study and a case control. {6}

1. For the data below calculate the measures of variability. {6}

1 5 3 7 3

**Section B**

1. a. Using a diagram with markings of the measures of central tendency, illustrate the following;

* 1. Symmetrical distribution
  2. Positively skewed distribution
  3. Negatively skewed distribution {6}

b. For the cases below decide the appropriate level of measurement:

i. When judges in an ice-skating contest give their marks for style and presentation ii. A set of records classifies patients as ‘chronic’, ‘acute’ or not yet ‘classified’ iii. Types of bicycles ridden by students in the first year Theology class iv. The IQ of students v. Proficiency in Moral Theology is graded into categories of poor, fair and good {5}

c. A student is measuring assertiveness with an interval scale. Is it correct to say that a score of 30 on the scale represents half as much assertiveness as a score of 60? Explain. {4}

d. Explain why, despite the fact that simple random sampling is desirable, it is not the most statistically efficient sampling technique. {4}

e. The following times taken to solve an anagram were recorded (in seconds) 12, 8, 23, 13, 17, 15, 18, 21, 18, 14, 18, 29, 55, 12

i. Calculate the mean, median and mode for the data. {5} ii. Suggest why the mean is a little higher than the median? {2} ii. Calculate the range, variance and standard deviation for the data. {5}

f. Define the following terms:

i. Data ii. Information iii. Population iv. Sample {4}

**2.** a.A local newspaper reports that typhoid outbreaks have been recorded in Mabvuku/ Tafara in the following years 2004, 2005, 2006, 2009, 2011 and 2012 and all outbreaks were recorded during the rainy season. Using the above information formulate

i. A research topic {2} ii. Problem Diagram analysis {5} iii.Two objectives {3} iv. 5 variables. {2}

b**.** Identify a research situation in which a probability sample would be most appropriate. Which probability sampling technique would you apply? {5}

c**.** Explain why literature review is critical before engaging in any study. {6}

d.A survey was done on whether in-school adolescents who are pregnant should continue to attend classes or not. The following results were obtained

Category Frequency

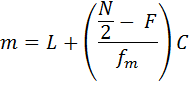
1. Strongly Agree 110 2. Agree 220 3. Not sure 380 4. Disagree 210 5. Strongly Disagree 280

Using the above information

i. Construct a pie chart {4} ii. Construct a bar graph {4}

e. Discuss the strengths and limitations of primary sources of data. {4}

**List of Formulae**

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Position of median = *(n +1)*/ *2*