



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY
SCHOOL OF HEALTH SCIENCES
UNIVERSITY EXAMINATION FOR DEGREE OF PUBLIC HEALTH AND
COMMUNITY DEVELOPMENT
1st YEAR 2nd SEMESTER 2022/2023 ACADEMIC YEAR
MAIN CAMPUS

COURSE CODE: HMP 5121

COURSE TITLE: EPIDEMIOLOGIC METHODS

EXAM VENUE:

STREAM:

DATE:

EXAM SESSION: DEC 2022

TIME:

3.00 HOURS

Instructions:

1. Answer question 1 (compulsory) and any other three (3).
2. Each question carries 15 marks

Answer question 1 (compulsory) and any other three questions. Each question carries 15 marks.

Question 1:

Explain the following concepts in relation to conducting experimental studies:

- a. Differential disease misclassification *3marks*
- b. Event probability distributions *3marks*
- c. Regression analysis *3marks*
- d. Hypothesis testing *3marks*
- e. Sampling procedure *3marks*

Question 2:

Previous studies on the pneumonia outbreak caused by the 2019 novel coronavirus disease (COVID-19) have been largely based on information from the general population, whereas limited data are available for pregnant women with COVID-19 pneumonia. Researchers wanted to evaluate the clinical characteristics of COVID-19 in pregnancy and the intrauterine vertical transmission potential of COVID-19 infection. Describe:

- b. The appropriate study design to use and justify your choice *2marks*
- c. Some of the study variables for this study *2marks*
- d. What type of data they might need and their sources *3marks*
- e. Data capture methods and procedures to ensure accuracy and validity of data *3marks*
- f. Descriptive and multivariate statistical methods you would use to analyze continuous and categorical data. *5marks*

Question 3:

As a study coordinator of a cluster randomized community intervention study to evaluate uptake of a novel screening tool for cancer, you are expected to oversee planning for and implementation of all aspects of the study to ensure compliance with protocol and realization of expected outcomes.

- a. Highlight any **Two (2)** research supervision and monitoring activities you would implement to ensure ethical conduct of the study. *4 marks*
- b. Describe the potential biases, their sources and how you could address them *8 marks*

- c. Describe potential indications for an *'intention-to-treat'* analysis strategy in randomised controlled trials. 3 marks

Question 4:

A researcher has observed from literature that about 5% of the nation's children have autism, majority of whom have history of adverse perinatal experiences, but this relationship has not been proven.

- a. Write an appropriate hypothesis for this situation. 2 marks
- b. Describe an appropriate study design is for your hypothesis 4marks
- c. Describe parameters that you would consider in estimating the study sample size for this study and why these are important 6marks
- d. Identify potential criteria for participant inclusion in this study. 3 marks

Question 5:

Concerning observational studies:

- a. List any four examples and describe their distinguishing features 8marks
- b. Identify any for data tools you would use in observation studies 2 marks
- c. Describe three strategies you would use to ensure validity and reliability of study tools 5 marks