

**CHUKA**



**UNIVERSITY**

**UNIVERSITY EXAMINATIONS**

**1<sup>ST</sup> YEAR EXAMINATION FOR THE AWARD OF**

**MASTERS OF SCIENCE IN NURSING**

**NUCH 811: EPIDEMIOLOGY. TIME: 3 HOURS**

**DAY/DATE:.....**

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**INSTRUCTIONS:**

- Do not write anything on the question paper.
- Mobile phones and any other reference materials are NOT allowed in the examination room.
- Number ALL your answers and indicate the order of appearance in the space provided in the cover page of the examination answer booklet.

**Instructions: answer any five (5) questions.**

1. a. Explain the process of epidemic investigation. (10mks)  
b. Explain any any four (4) uses of epidemiology in management of county's health (10mks)
2. a. Explain the principles of screening and the criteria for assessing a screening test (10mks)  
b. A screening test for a preclinical stage of a cancer is known to have a sensitivity of .90 (i.e., 90%) and a specificity of .96 (i.e., 96%). The prevalence of this cancer in its preclinical phase in the population is 1 per 1000 (.001). Assume we use this test in one-hundred thousand (100,000) people. Based on this information, determine:
  - a. the number of true positives = \_\_\_\_\_
  - b. the number of true negatives = \_\_\_\_\_
  - c. the number of false negatives = \_\_\_\_\_
  - d. the number of false positives = \_\_\_\_\_
  - e. the total number of test positives = \_\_\_\_\_ (Each @ 2mks)
3. As a county epidemiologist, it has been reported to you that there is an upsurge in the number of typhoid cases in your County. **Using chain of infection**, explain the interventions you would put in place at every stage to minimize spread. (10mks)
  - b. Explain in details the difference between Analytical studies and Experimental studies. (10mks)
4. In an outbreak or epidemic, epidemiologists gather data to study cause and effect relationships associated with the disease. Using **Bradford Hill Criteria** discuss how you would determine whether an **association is causal between an exposure and outcome** (20mks).
5. Explain bias and confounding in epidemiological studies and how they can be reduced. (11 marks)

b. Explain **Maxwell's criteria** for evaluation of health services (9mks)

6. Explain using practical examples ethical issues in research involving human subjects (20mks)