# TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF ENVIROMENT & HEALTH SCIENCES

## UNIVERSITY EXAMINATION FOR:

### BACHELOR OF SCIENCE IN COMMUNITY HEALTH

### BSCH 14S/YEAR 3/ SEMESTER 1

### ACM 4301: RESEARCH METHODS

**END OF SEMESTER EXAMINATION**

**SERIES: DECEMBER 2016**

**TIME: 2 HOURS**

**INSTRUCTIONS TO CANDIDATES:**

- This paper consists of FIVE questions
- Answer question ONE (Compulsory) and any other THREE questions on the answer booklets provided.
- Do not write on this question paper.

## Question one

a) State the difference between probability and non-probability sampling methods? (2 marks)

b) What is the difference between reliability and validity? Which is more important (4 marks)

c) Describe conditions that determine whether a problem requires research (3 marks)

d) A researcher wants to sample from the population such that gender and age groups are represented in proportion to their numbers within the population. Explain the most appropriate sampling method that the researcher should use (3 marks)

e) Describe five pieces of information that are required before sample size calculation commences (5 marks)

f) Explain why it is important to develop a plan for data collection? (3 marks)

g) Discuss main reasons why ecological studies are performed (6 marks)

h) How is case-control study different from a retrospective cohort study? (4 marks)

**Question two**

In June 2016, it was suspected that malaria might be on the increase in Mombasa County. The County health executive officer requested his officers to conduct an observational study that will involve collecting data once from study participants within the next 3 months

a. State a possible title of the study (2 marks)

b. Formulate a possible statement of the problem for the study (3 marks)

c. Generate both general and specific objectives for the study (3 marks)

d. Discuss the study design that is appropriate for this study (3 marks)

e. What are the advantages and the disadvantages of the study design in d above (9 marks)

**Question three**

The housefly feeds on typhoid bacilli-infected excreta in the latrines/toilets and is able to carry such excreta from sick to the healthy.in a city with stable population; the latrines were open and accessible to the housefly. In a period of a few months toward the end of the year, the latrines were all made flyproof. The number of cases listed in the table below of typhoid fever occurred in the city the year before and the year after the latrines were made flyproof, by month

| Month | Typhoid cases occurring before flyproofing | Typhoid cases occurring after flyproofing |
|---|---|---|
| January | 8 | 9 |
| February | 0 | 5 |

| | | |
|---|---|---|
| March | 4 | 7 |
| April | 6 | 4 |
| May | 41 | 11 |
| June | 41 | 18 |
| July | 109 | 10 |
| August | 82 | 5 |
| September | 14 | 7 |
| October | 15 | 8 |
| November | 7 | 2 |
| December | 2 | 4 |
| **Total** | **329** | **90** |

a) Which study design was applied in the study above (4 marks)

b) What are your reasons for the study design in (a) above (4 marks)

c) What inferences would you derive from these data (6 marks)

d) Are there any additional data that you would like to have before deriving any inferences? If so, list the kind of data (6 marks)

## Question four

Bias in information collection is a distortion in the collected data so that it does not represent reality. Discuss four possible sources of bias during data collection and ways through which they can be prevented (20 marks)

## Question five

Provide summarized details of the major components of a research proposal (20 marks)