



**AMREF INTERNATIONAL UNIVERSITY
SCHOOL OF MEDICAL SCIENCES
DEPARTMENT OF NURSING & MIDWIFERY SCIENCES
END OF SEMESTER AUGUST 2023 EXAMINATIONS**

COURSE CODE: DOP 115

COURSE TITLE: EPIDEMIOLOGY & RESEARCH METHODS

DATE: 9th August 2023

Duration: 2 HOURS

Start: 2:00 PM

Finish: 4:00 PM

INSTRUCTIONS

1. This exam is out of 70 marks
2. This Examination comprises **THREE** Sections. Section I: Multiple Choice Questions (20 marks)
Section II: Short Answer Questions (30 marks) and Section III: Long Answer Questions (20 marks)
3. Answer **ALL** Questions.
4. Do Not write anything on the question paper -use the back of your booklet for rough work if need be.

SECTION I: MULTIPLE CHOICE QUESTIONS

(20 MARKS)

1. Proper initiation of research starts with the development of a clear and well thought out: -
 - A. Specific objectives
 - B. Research questions
 - C. Problem statement
 - D. Study design

2. A good research question should be: -
 - A. Feasible, Important, Necessary, Ethical, Relevant
 - B. Feasible, Interesting, Novel, Ethical, Relevant
 - C. Feasible, Interesting, New, Essential, Recent
 - D. Feasible, Important, Necessary, Essential, Recent

3. Indicate which kind of hypotheses can be used to describe this statement:-
Drug A does not show a better prognosis compared to Drug B.
 - A. Alternative, Non-directional hypothesis
 - B. Null, Non-directional hypothesis
 - C. Alternative, Directional hypothesis
 - D. Null, Directional hypothesis

4. Which of the following is a feature of probability sampling: -
 - A. Involves random selection
 - B. Is not a good representative of the population
 - C. It cannot be used to infer
 - D. It does not depend on the rationale of probability theory.

5. Triple blinding involves: -
 - A. The patient not being aware of the random allocation
 - B. The patient and the researcher not being aware of the random allocation
 - C. The patient, the researcher and the data analyst are not aware of the random allocation
 - D. The patient, the researcher, data analyst and the sponsors are not aware of the random allocation.

6. The data collection tool commonly used in qualitative studies include: -
 - A. Interview guides, Observation checklist
 - B. Interview guides, Focused group discussion guides
 - C. Structured questionnaire, Observation checklist
 - D. Structured questionnaire, Focused group discussion guides.

7. Validity that is based on whether a test appears to measure what it's supposed to measure is: -
 - A. Construct validity
 - B. Criterion-related validity
 - C. Face validity
 - D. Internal validity.

8. The ethical principle that would be applied by an oncology nurse researcher who avoids exposing the participants to excess radiotherapy so as not to harm them is: -
 - A. Respect for persons
 - B. Beneficence

- C. Non-maleficence
D. Justice.
9. A Likert scale used to collect the perception of patients receiving chemotherapy in an oncology unit would collect data that belongs to which level of measurement: -
A. Ratio
B. Interval
C. Ordinal
D. Nominal.
10. Which of the following is an advantage of the mode over the median as a measure of central tendency: -
A. Simple to understand and easy to calculate
B. It takes into account all the values
C. It is not affected by the extreme values
D. It is the most commonly used measure of central tendency.
11. The statistical test used to analyse the difference between the means of just two groups: -
A. Student t-test
B. Analysis of variance
C. Analysis of covariance
D. Chi square test.
12. The test statistic for association used when both the outcome variable and the predictor variable is categorical is: -
A. Pearson correlation
B. Chi square test
C. Analysis of variance (ANOVA)
D. Regression analysis.
13. Experimental study concept that entails the administration of therapy or intervention to the experimental group is: -
A. Randomization
B. Manipulation
C. Control
D. Blinding.
14. In a case control study, the point where the study starts is the: -
A. Exposure
B. Outcome
C. Between exposure and outcome
D. Both exposure and outcome.
15. Which of the following studies is the strongest in terms of the hierarchy of evidence: -
A. Case series studies
B. Systematic reviews
C. Randomized controlled trials
D. Cross-sectional studies.
16. Which among the following are measures of association: -
A. Prevalence, Incidence
B. Risk, Rates
C. Relative risk, Odds ratio

D. Attributable risk, Ratios.

17. The following study design can be analytical and also descriptive in nature :-

- A. Randomized controlled trials
- B. Cohort studies
- C. Cas-control studies
- D. Cross-sectional studies.

18. A 2 by 2 table used in most epidemiological studies is COMMONLY called: -

- A. Double table
- B. Epidemiological table
- C. Contingency table
- D. Association table.

19. Which among the following elements is found in the appendix section of the research proposal: -

- A. Preliminaries
- B. Gant chart
- C. Abstract
- D. Table of content.

20. The final part of the research process involves: -

- A. Analysis of data
- B. Collection of data
- C. Writing the report
- D. Presentation of the data

SECTION II: SHORT ANSWER QUESTIONS

(30 MARKS)

- 1. Explain THREE (3) components that a Pearson correlation describes (6 Marks)
- 2. Outline FOUR (4) types of consent (4 Marks)
- 3. The following data was collected among male patients who are receiving radiotherapy for advance stage prostate cancer. The figures show the number of weeks they have received the radiotherapy sessions.

IP No.	Duration of radiotherapy (Weeks)
24	4
25	5
26	8
27	5
30	10
32	11
48	13
66	12

74	7
75	3
105	5

- a) Calculate the mean (2 Marks)
 - b) Identify the median (1 Mark)
 - c) Calculate the IQR (2 Marks)
 - d) Calculate the Standard Deviation (3 Marks)
4. State FOUR (4) secondary sources of literature (4 Marks)
 5. Outline the FOUR (4) elements of a PICO research question model 4 Marks
 6. During the period between December 2019 to December 2020 there were a total of 7200 deaths in a population of 300,000 people in subcounty X. In this same period 527 people had been diagnosed with small cell carcinoma. The data shows that of the total deaths only 32 had died from small cell carcinoma. From this data calculate the;
 - a) Mortality rate in sub-county X (2 Marks)
 - b) Small cell carcinoma case fatality rate in sub-county X (2 Marks)

SECTION III: LONG ANSWER QUESTION (20 MARKS)

1. An oncology study nurse conducted a cohort study that tried to establish the relationship between use of computer and occurrence of uveal melanoma. The following 2x2 contingency table was developed.

	Occurrence of Uveal melanoma		Total
	Melanoma Present (+)	Melanoma Absent (-)	
Computer use	200	20	220
No computer use	48	32	80
Total	248	52	300

- a) Define cohort study (2 Marks)
- b) Describe the step-by-step process of conducting a cohort study (8 Marks)
- c) In this oncology study identify the: - (2 Mark)
 - I. Outcome of interest
 - II. Exposure
- d) Calculate the risk rate of developing uveal melanoma in those using computer (2 Marks)
- e) Calculate the risk rate of developing uveal melanoma in those not using computer. (2 Marks)
- f) Calculate the relative risk. (2 Marks)
- g) Interpret your findings. (2 Marks)