



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

**BSM 314: EPIDEMIOLOGY AND DEMOGRAPHY IN MIDWIFERY**

**DATE: 12<sup>TH</sup> APRIL 2023**

**Duration: 2 HOURS**

**Start: 11:15 A.M.**

**Finish: 01:15 A.M.**

**INSTRUCTIONS**

- 1.** This exam is out of 70 marks
- 2.** This Examination comprises **THREE** Sections. Section A: Multiple Choice Questions (20 marks) Section B: Short Answer Questions (30 marks) and Section C: 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 A: MULTIPLE CHOICE QUESTIONS****(20 MARKS)**

1. Number of current cases (new and old) of specified disease identified over a given time interval from estimated population at mid interval is called: -
  - A. Prevalence
  - B. Period Prevalence
  - C. Point Prevalence
  - D. Disease Prevalence
2. The following term provides true representation of whole population: -
  - A. Sampling
  - B. Random Sampling
  - C. Case reporting
  - D. Sample
3. Measure of the frequency of occurrence of death in a defined population during a specified interval is called: -
  - A. Crude death rate
  - B. Mortality Rate
  - C. Death ratio
  - D. Mortality
4. Surveillance system information cycles include: -
  - A. Family and community
  - B. Public, Health care provider and Health agencies
  - C. Family only
  - D. Public, Health care provider only
5. Measurement of disease, disability or death and converting this information in to rates and ratio is defined as: -
  - A. Specificity
  - B. Screening
  - C. Frequency
  - D. Sensitivity
6. In an epidemiological context, the population at risk is: -
  - A. The proportion of a population that engages in risky behaviours.
  - B. The group of people that may experience the outcome we want to study.
  - C. A group of people participating in a study that may be harmful to them.
  - D. The population group with the highest relative risk of disease.
7. The number of new cases occurring in a defined population during a specified period of time is called: -
  - A. Prevalence
  - B. Incidence
  - C. Cumulative prevalence
  - D. Cumulative incidence
8. In descriptive epidemiology disease described in terms of: -
  - A. What, Why and How
  - B. Host, Agent and Environment
  - C. Time, Place and Person
  - D. Agent, Place and Person
9. The following ratio provide us an estimate of risk in case control study: -
  - A. Odd ratio

- B. Sex ratio
  - C. Disease ratio
  - D. Relative risk
10. The key components of Epidemiological triangle: -
- A. Host, Agent and Physical Environment
  - B. Host, Genes and Physical Environment
  - C. Host, Agent and Environment
  - D. Agent, Genes and Physical Environment
11. The following is a part of continuum of natural history of the disease: -
- A. Stage of health promotion
  - B. Stage of prevention
  - C. Stage of Recovery
  - D. Stage of sampling
12. A person who harbors the microorganisms of a disease and excretes them without self suffering from symptoms is called: -
- A. Reservoir
  - B. Carrier
  - C. Host
  - D. Agent
13. Ratio of population who are economically not active to those who are economically active can be defined as: -
- A. Dependency Ratio
  - B. Age Ratio
  - C. Population Ratio
  - D. Risk benefit ratio
14. The profile of single patient as reported in detail by one or more clinicians is called: -
- A. Case control study
  - B. Case Series
  - C. Investigation
  - D. Case Report
15. The following statements about exposures is true: -
- A. 'Exposure' refers to contact with some factor that may be harmful or beneficial to health.
  - B. An exposed individual has a greater risk of disease.
  - C. Dietary intake is not an 'exposure' because individuals make a choice about what they eat.
  - D. High body mass index is a risk factor for a range of health conditions, therefore, it cannot be treated as a single exposure.
16. Epidemiological measures of effect assess the \_\_\_\_\_ between an exposure and an outcome: -
- A. Strength of the causal mechanisms
  - B. Strength of the reversibility
  - C. Strength of the association
  - D. Strength of a confounding factor
17. Randomized, controlled trials provide strong evidence that an observed effect is due to the intervention (the assigned exposure). One reason is because: -

- A. When the participants are randomized, many characteristics and possible confounding factors are likely to be evenly distributed in the groups.
  - B. It is easier to measure the outcome variable with great precision in randomized controlled trials compared to other study designs.
  - C. The exposure level and the outcome are measured at the same time.
  - D. The study participants are volunteers and therefore motivated to take part in the study.
18. Disease control measures are generally directed at the following: -
- A. Eliminating the reservoir
  - B. Eliminating the host
  - C. Interrupting mode of transmission
  - D. Reducing host susceptibility
19. A propagated epidemic usually results from exposure to: -
- A. Point source
  - B. Continuous common source
  - C. Intermittent common source
  - D. Person-to-person
20. It is possible to reduce (though not eliminate) information bias in the assessment of dietary intake by: -
- A. Gathering information about many different aspects of people's dietary habits.
  - B. Collecting data about dietary intake at the onset of a study, before people have experienced symptoms of the disease.
  - C. Collecting data on all possible confounders.
  - D. Making sure that the study sample is representative of the population.

**SECTION B: SHORT ANSWER QUESTIONS** **(30 MARKS)**

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|---|------------|
| 1. Explain three (3) classifications of experimental designs                    | (6 marks)  |
| 2. State six (6) steps in cohort study design                                   | (6 marks)  |
| 3. Outline four (4) benefits of screening test                                  | (4marks)   |
| 4. Explain two (2) assumptions of Malthusian theory on population growth        | (4 marks). |
| 5. State four (4) stages in Demographic Transition Theory                       | (4 marks)  |
| 6. Explain three (3) health promotion strategies anchored in primary prevention | (6 marks)  |

**SECTION C: LONG ANSWER QUESTION –** **(20 MARKS)**

1. The following data are a subset of the Framingham study results showing the number of coronary heart disease (CHD) cases becoming clinically apparent six years after follow up of a cohort of 1329 men in the 40 to 59 age group. The men are divided by their level of serum cholesterol (a suspected risk factor) at the start of the study:

	Cholesterol $\geq 220$ mg%	Cholesterol $< 220$ mg%
CHD:	72	20
No CHD:	684	553

- Calculate the overall incidence rate (4 marks)
- Estimate incidence risk in exposure and non- exposer (4 marks)
- Calculate the risk Difference (2 marks)
- Calculate the relative risk (2 marks)
- Calculate Attributable fraction of exposure and interpret (4 marks)
- Calculate attributable fraction of the population and Interpret (4 marks)

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