



**UNIVERSITY EXAMINATIONS FOR
2017/2018 ACADEMIC YEAR**

SECOND YEAR SECOND TRIMESTER SUPPLEMENTARY EXAMINATION
FOR THE DEGREE

OF

BACHELOR OF SCIENCE IN MEDICAL LABORATORY SCIENCES

SCHOOL: Public Health, Biomedical Sciences and Biotechnology

COURSE CODE: BML 424

COURSE TITLE: Medical Epidemiology and Community Health and

DATE: JULY 2018

Duration: Two (2) Hours

General instructions to candidates

1. This section consists of sections A, B and C, carrying a maximum of seventy (70) marks)
2. Answer all the questions in the university examinations booklets provided
3. Write your registration number only
4. Write your registration number on every new leaf of the examination booklet used
5. Read the instructions under each section and answer the questions accordingly

Instructions to the Candidate

1. This section has twenty questions, carrying a maximum of twenty (20) marks)
2. Each question only ONE correct answer
3. Indicate the correct answer for each question by writing the corresponding letter in the provided university examination booklet

SECTION A: MULTIPLE CHOICE QUESTIONS (MCQs)

Answer ALL questions by indicating "T" for a true choice and "F" for a false choice.

- 1. The first epidemiologist who studied cholera in London was**
 - a) Robert Koch F
 - b) Jonas Salk F
 - c) Alexander Fleming F
 - d) John Snow T

- 2. The science of protecting populations and improving the health of the communities through education is called**
 - a) Epidemiology F
 - b) Public health T
 - c) Preventive medicine F
 - d) Sociology F

- 3. The focus of epidemiologic studies is on**
 - a) Individuals F
 - b) Communities T
 - c) Skin F
 - d) Lungs F

- 4. Any factor that brings about change in health condition or other defined characteristic is a/an**
 - a) Determinant T
 - b) Quantification F
 - c) Outcome F
 - d) None F

- 5. The probability that an individual will become ill or die within a stated period of time or by a certain age is.....**
 - a) Epidemiological transition F
 - b) Risk F
 - c) Hypothesis F
 - d) Variable F

- 6. The occurrence of a new disease or mortality within a defined period of observation in a specific population is.....**
 - a) Incidence F
 - b) Prevalence F
 - c) Count F
 - d) Ratio F

- 7. A centralized database for collection of information about a disease is**
- a) Registry F
 - b) Health surveillance F
 - c) Syndromic surveillance F
 - d) Memory F
- 8. The following refers to the number of years that a person is expected to live, at any particular year**
- a) Maternal mortality F
 - b) Life expectancy T
 - c) Infant mortality F
 - d) Neonatal mortality F
- 9. A descriptive term for a person's position in society is....**
- a) Socioeconomic status F
 - b) Nativity F
 - c) Clustering F
 - d) Pastor F
- 10. Which of the following terms is defined as the domain in which disease-causing agents may exist, survive or originate?**
- a) Host F
 - b) Agent F
 - c) Environment F
 - d) None F
- 11. The first formal ethical code for conducting research was:**
- a) The Declaration of Helsinki F
 - b) The Nuremberg Code T
 - c) The Belmont Report F
 - d) The Council for International Organizations of Medical Science F
- 12. If, after performing a Student test for comparison of means, we obtain $p = 0.0256$, then:**
- a) We reject H_0 and accept H_1 T
 - b) We accept H_0 F
 - c) We reject H_1 F
 - d) We cannot decide F
- 13. The result of a statistical test, denoted p , shall be interpreted as follows:**
- a) The null hypothesis H_0 is rejected if $p < 0.05$ T
 - b) The null hypothesis H_0 is rejected if $p > 0.05$ F
 - c) The alternate hypothesis H_1 is rejected if $p > 0.05$ F
 - d) The null hypothesis H_0 is accepted if $p < 0.05$ F

14. Which of the following tests are parametric tests:

- a) ANOVA T
- b) Student T
- c) Wilcoxon F
- d) Kruskal-Wallis F

15. The Student's t test is:

- a) A parametric test T
- b) A nonparametric test F
- c) A test for comparing averages T
- d) A test for comparing variances F

16. The key factor in conducting ethical research is:

- a) Informed consent T
- b) Beneficence F
- c) Justice F
- d) Respect for persons F

17. Which of the following first promulgated the three principles of ethical research: respect for persons, beneficence and justice?

- a) The Declaration of Helsinki F
- b) The Nuremberg Code F
- c) The Belmont Report T
- d) The Council for International Organizations of Medical Science F

18. Which of the following is an experimental study:

- a) Cohort F
- b) Case control F
- c) Survey F
- d) Randomized Controlled Trial (RCT) T

19. Case control studies are:

- a) Prospective F
- b) Retrospective T
- c) Overmatched F
- d) Multivariate F

20. Which type of study compares those who have had an outcome or event with those who have not?

- a) Case-control T
- b) Case series F
- c) Cohort study F
- d) Meta-analysis F

21. In longitudinal survey studies, the same respondents are surveyed

- a) At several time points T
- b) At a single time point F
- c) Only once F
- d) Cross-sectionally F

SECTION B: SHORT ANSWER QUESTIONS (SAQs)

Instructions to Candidates

- This section has eight short answer questions (SAQs)
- The section carries a maximum of forty (40) marks distributed as indicated against respective questions
- Answer all the questions

1. Discuss the Public Health Chapter 242 of The Laws of Kenya in the control of “Ebola outbreak” in Kenya
2. Discuss the epidemiological “Ws” in the context of the distribution of diseases
3. a) Name the three (3) statistical measures of central tendency.
b) Name the five (5) statistical measures of variation.

4. a) Briefly describe “Epidemiological Surveillance”
b) define and briefly describe the following terminologies with regard to epidemiological surveillance:

5. Define the following “Surveillance Terms”.

6. a) Describe qualitative epidemiological methods (QM)
b) State the role of quantitative methods in public health:
7. Define the following epidemiological terminologies:

Endemicdisease

Epidemic

Epidemicperiod

Epidemiologictriad

Evaluation

Contacttracing/Experimentalstudy

Healthindicator

Healthinformation system

High-risk group

Host

Hostfactor

Hyperendemicdisease

8. Detail the steps in designing a qualitative study

SECTION C: LONG ANSWER QUESTIONS (LAQs)

Instructions to candidates

- This section carries two (2) long answer questions (LAQs) with equal marks
 - It carries a maximum score of forty (40) marks
 - Answer both questions
1. Define and explain the following epidemiological terminologies:
 - a) **Case definition:** a set of standard criteria for deciding whether a person has a particular disease or health related condition, by specifying clinical criteria and limitations on time and place and person.
 - b) **Cause of disease:** a factor, behavior that directly influences the occurrence of disease. A reduction of the factor in the population should lead to in the occurrence of disease.
 - c) **Contagious** capable of being transmitted from one person to another by contact or close proximity
 - d) **Descriptive epidemiology:** the aspect of epidemiology concerned with organizing health related data according to time, place, and person.
 - e) **Determinant:** any factor, whether even characteristics or other definable entity, that brings about change in a health condition or other defined characteristics
 - f) **Endemic disease:** the constant presence of a disease or infectious within a given geographical location or population group; may also refer to the usual prevalence of a given disease within such an area or group
 - g) **Epidemic:** the occurrence of more cases of disease than expected in a given area or among a specific group of people over a particular period of time
 - h) **Epidemic period:** a time period when the number of cases of disease reported are greater than expected
 - i) **Epidemiologic triad:** the traditional model of infectious disease causation. Includes three components: an external agent, a susceptible host and an environment that bring about the host and agent together, so that disease occurs
 - j) **Evaluation:** a process that attempts to determine as systematically and objectively as possible the relevance, effectiveness and impact of activities in the light of their objectives
 - k) **High risk group:** a group in the community with an elevated risk of disease
 - l) **Host:** a person or other living organism that can be infected by an infectious agent under natural conditions.
 - m) **Host factor:** an intrinsic factor which influences an individual's susceptibility, or response to a causative agent
 - n) **Hyperendemic disease:** a disease that is constantly present at a high incidence and/or prevalence rate
 - o) **Incidence rate:** a measure of the frequency with which an event, such as new case of illness, occurs in population over a period of time

- p) **Incubation period:** a period of subclinical or in apparent pathologic changes following exposure, ending with the onset of symptom of infectious disease
- q) **Independent variable:** an exposure risk factor or other characteristics being observed or measures that is hypothesized to influence an event or manifestation
- r) **Morbidity;** any departure, subjective or objective from a state of physiological or psychological wellbeing
- s) **Outbreak;** synonymous with the epidemic sometimes the preferred word, as it may escape sensationalism associated with the word epidemic
- t) **Pandemic:** an epidemic occurring over wide area and usually affecting a large proportion of the population
- u) **Vector:** an animate intermediary in the indirect transmission of an agent that carries the agent from a reservoir to a susceptible host

2. Illustrate and discuss the epidemiological triad