GREAT LAKES UNIVERSITY OF KISUMU
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FACULTY OF HEALTH SCIENCES
SCHOOL OF NURSING AND MIDWIFERY

MAY-AUGUST 2023 Academic Semester
END OF SEMESTER FINAL EXAMINATION
UNIT CODE: HNS 211 UNIT NAME: MICROBIOLOGY

TIME: 3 HOURS

Instructions to candidates

1. Read the Instructions carefully and answer only what is asked for.
2. Enter your examination number and course code in the space provided in the answer sheet.
3. All questions are compulsory **unless specified**.
4. Part one MCQ, Each MCQ is 1 mark.
5. For Part Two, Short answer questions, answer each question following each other
6. For Part Three, Long Answer questions, answer each subsections following each other.
7. Omission of or wrong numbering of questions or part of the question will result in 5% marks deduction from the relevant part.

SECTION I (30 MARKS)

1. Microbiology is the study of microorganisms of medical importance. Which of the following is / are not part of the study;
   a) Pathogenesis of mycoses
   b) Transmission of polio virus
   c) Progression of iron deficiency anaemia
   d) Prevention and control of Protozoa
   e) Investigation of diabetes mellitus
2. The following are beneficial application of microbiology except?
   a) Useful as decomposers in farm products
   b) Fermentation in food industry
   c) Sewage treatment
   d) Prediction of human mortality
   e) Determining the parents of a child
3. The following are characteristics of prokaryotic cells except;
   a) They possess cell wall that consist of peptidoglycan
   b) Lacks true nucleus with nucleoid
   c) Mitochondria is present
   d) Reproduce by mitosis
   e) Have circular DNA

4. The following is true of Robert Koch except;
    a) Introduced milk preservation techniques
    b) Identified bacteria as a cause of anthrax
    c) Introduced methods of sterilizations
    d) Introduced Koch postulate and concept that a disease is caused by a single organism
    e) Introduced culture medias
5. The following is true of a eukaryotic cell except?;
    a) Posses nuclear membrane
    b) Have paired chromosomes
    c) Have cell walls
    d) Multiply by binary fission
    e) A good example is intestinal worms
6. Infections of micro bacteria can be effected through the following routes except;
    a) Inhalation
    b) Transplacental route
    c) Radiations procedures
    d) Skin contact
    e) Sexual intercourse
7. The common characteristic of pathogenic bacteria includes the following except;
    a) They produce toxins
    b) Able to invade the body system
    c) Must be able to survive in temperatures above 100°C
    d) Are all gram positive
    e) Are all spore formers
8. The following is true of exotoxins;
    a) Are highly toxic
    b) Are released by bacteria after death
    c) Are highly antigenic
    d) Are weakly immunogenic
    e) Are relatively stable and can withstand temperature above 60°C
9. Which of the followings are gram positive bacteria;
    a) Staphylococcus
    b) Salmonella
    c) Escherichia
    d) Streptococcus
    e) Klebsiella
10. Which of the following are gram negative bacteria;
    a) Staphylococcus
    b) Salmonella
    c) Klebsiella
    d) Streptococcus
    e) Mycobacterium
11. Bacteria is classified based on which of the following criteria;
    a) Bacterial cell structure / type / morphology
    b) Gram staining reaction
    c) Based on lifespan

d) Mode of infection
e) Based of drug of choice

12. The following are physical methods of sterilization except;
    a) Radiation
    b) Heat
    c) Phenal
    d) Formalin
    e) Sunlight
13. Sterilization is affected by which of the following;
    a) Time and concentration of disinfectant
    b) Company source
    c) Cost of disinfectants
    d) Mode of application
    e) Presence of organic materials
14. Chemical methods of sterilization include the following;
    a) Use of Lysol
    b) Boiling
    c) Vibration
    d) Phenol
    e) Filtration
15. The following explains antimicrobial drugs resistance
    a) Genetic mutation
    b) Modification of antimicrobial agents
    c) Nutritional uptake
    d) Aging status of a patient
    e) Window periods
16. Properties of a good disinfectant is / are;
    a) Should be rapid in action
    b) Should cause harm to the tissue membrane of the user
    c) Should paint the item disinfected
    d) Should be non toxic to the user
    e) Must change its composition and become turbid

SECTION II (ESSAY 40 MARKS)
(ANSWER ANY 2 QUESTIONS)

1. Briefly discuss sterilization techniques base on;
    a) Physical methods (5 marks)
    b) Chemical methods (5 marks)
    c) Briefly explain the good qualities of a good disinfectant (10 marks)

2. a) With the aid of a well labeled diagram, explain functions of prokaryotic cell organelles (10 marks)
    b) Discuss briefly the application of microbiology in the modern development (10 marks)

3. Explain briefly the following laboratory procedures

a) A gram stain technique (5 marks)
b) Culture and sensitivity (5 marks)
c) Disinfections with examples (5 marks)
d) Urinalysis (5 marks)