



MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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UNIVERSITY EXAMINATIONS 2023/2024

FIRST YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF
SCIENCE IN NURSING

NND 3123: MEDICAL MICROBIOLOGY

DATE: APRIL 2024

TIME: 3 HOURS

INSTRUCTIONS: *All questions are compulsory*

Ensure that all your answers are properly numbered

Part 1 Multiple Choice Questions (MCQs): Write the correct answer on the space provided in the answer booklet. Each MCQ is one mark.

Part 11: Short Answer Questions-Answer questions following each other on the answer booklet

Part 111: Long Answer Questions-Answer the questions on the answer booklet.

SECTION A: Multiple Choice Questions (20 MARKS)

1. What are the cell wall structural components of fungi?
 - a) Peptidoglycan
 - b) Cellulose
 - c) Chitin
 - d) Chitin, cellulose, or hemicellulose
2. Cryptococcosis is disease of _____
 - a) viral infection
 - b) mycotic infection
 - c) parasitic infection
 - d) bacterial infection

3. Which among the following is a pathogenic alga for humans?
- a) Cephaleuros
 - b) Acanthopeltis
 - c) Chlorella
 - d) Prototheca
4. What does a viral DNA becomes after being associated with the bacteria chromosome?
- a) Plasmid
 - b) Plaque
 - c) Prophage
 - d) Gene
5. Vaccination was invented by _____
- a) Watson
 - b) Jenner
 - c) Crick
 - d) Pasteur
6. Which of the following inhibits DNA replication'?
- a) x-rays
 - b) gamma rays
 - c) UV light
 - d) cathode rays
7. Which was the first disease for which a chemotherapeutic agent was used?.
- a) Small pox
 - b) Syphilis
 - c) AIDS
 - d) Malaria
8. Bacterial ceils in a medium exposed to high osmotic pressure, changes shape from rod-shaped to ____ shaped
- a) Elongated
 - b) Irregular
 - c) Rod shaped
 - d) Spherical

9. Which of the following is the most accurate method for microbial assay of antibiotics?

- a. Chemical and biological assay
- b. Biological assay
- c. Chemical assay
- d. Physical assay

10. Sterilization is done by autoclave consisting of exposure to steam about

- a) 120 °c
- b) 170 °c
- c) 121 °c
- d) 116 °c

11. Removal and killing of all microorganisms is known as

- a) Destruction
- b) Sterilization
- c) Pasteurization
- d) Removal

12. Chemical used for the removal of microorganisms from the mucous membrane and skin are called

- a. Detergents
- b. Alcohol
- c. Pesticides
- d. Antiseptics

13. Ciprofloxacin acts by inhibiting

- a. Cell wall synthesis
- b. RNA synthesis
- c. Folate synthesis
- d. DNA gyrase

14. The commonest form of anthrax is

- a. Alimentary
- b. Cutaneous
- c. Pulmonary
- d. Hepatic

15. Conjunctivitis in a new born is caused by

- a. Streptococcus
- b. Pneumococcus
- c. Meningococci
- d. None of these

16. Amoxicillin is combined with clavulanic acid to inhibit?

- a. DNA gyrase
- b. Cell synthesis
- c. Protein synthesis
- d. β -lactamase enzymes

17. The toxin produced by C. Botulism is?

- a) Botulin
- b) Tetanospasmin
- c) Tetanolysin
- d) Cholaragen

18. Nalidixic acid activity is due to

- a. The inhibition of synthesis
- b. Inhibition of protein synthesis
- c. The inhibition of cell all synthesis
- d. Both b and c

19. Food poisoning is caused by

- a) Clostridium tetani
- b) Clostridium Welchii
- c) Diphtheria
- d) Clostridium botulinum

20. Streptomycin is obtained from?

- a) Streptococcus species
- b) Streptomyces griseus
- c) Staphylococcus aureus
- d) None of these
- a) None of these

SECTION II; SHORT ANSER QUESTIONS (40MARKS)

1. With the aid of a sketch, describe the structure of a bacterial cell (6marks)



2. Enumerate four models through which pathogens transmit disease to human beings
(4marks)
3. State four ways via which infectious microorganisms are able to evade the immune system and cause destruction to cells and tissues
(4marks)
4. Giving examples where each is more appropriate, differentiate between the term's prokaryotic and Eukaryotic cells
(6marks)
5. Outline three types of staphylococcus species
(3marks)
6. Outline antimicrobial agents used for treatment of salmonella typhi
(4marks)
7. Giving examples describe microbial symbiosis
(6 Marks)
8. Describe the procedure for using a autoclave for sterilization of surgical materials
(7marks)

SECTION II: LONG ANSWER QUESTIONS (40MARKS)

1. Community acquired Multidrug Resistance Tuberculosis are an emerging cause of increased Mortality in developing countries. Discuss the statement giving possible prevention and control measures
(20Marks)
2. Karin is a female aged 48. One afternoon she experienced severe chest pains and was coughing profusely. At Aga Khan University Hospital. the doctor Mania recommended sputum microscopy, culture, antimicrobial susceptibility testing. Diagnosis showed he was suffering from Multi drug resistant Tuberculosis. Discuss Karin's case in terms of
(20marks)
 - a. Transmission
(5marks)
 - b. Diagnosis
(5marks)
 - c. Treatment and management
(5 marks)
 - d. Clinical signs and symptoms of the disease
(5 Marks)

