



UNIVERSITY OF EMBU

2018/2019 ACADEMIC YEAR

SECOND SEMESTER EXAMINATIONS

SECOND YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF
SCIENCE (NURSING)

HNS 212: MEDICAL MICROBIOLOGY

DATE: APRIL 8, 2019

TIME: 2:00-5:00PM

INSTRUCTIONS:

Answer:

All MCQS in section A;

All Short answer Question in section B

All long answer questions in section C

Cancelled work should be done neatly by crossing with a single line in the essay and by use of X in the MCQS.

SECTION A MULTIPLE CHOICE QUESTIONS (TOTAL: 20 MKS)

Choose (**CIRCLE/TICK**) only one correct answer from the following questions.

SECTION B & C Answer **ALL** the questions in this sections (40marks; Use the answer booklet provided)

MULTIPLE ANSWER SECTION

1. Bacteria that grows at 25- 40⁰c are termed as
 - a) Psychrophiles.
 - b) Mesophiles.
 - c) Halophile.
 - d) Commensals.

2. One of the following is not symbiotic association
 - a) Opportunism.
 - b) Parasitism.
 - c) Commensalism.
 - d) Mutualism.



Reg No:

3. Virulence is a term meaning
- Degree of pathogenicity.
 - Ability of microorganism to cause disease.
 - Ability of a microorganism to adhere to a host.
 - Ability of microorganism to debilitate a host.
4. The germ theory of disease was proposed by _____ in _____
- Louis pasteur 1857.
 - Joseph lister 1867.
 - Robert Koch 1876.
 - Theodor Schewan 1836.
5. Mycoplasmas are different from the other prokaryotes by
- Presence of chitin in cell walls.
 - Presence of murrain in cell walls.
 - Presences of proteins in cell walls.
 - Absence of cell wall itself.
6. The reactions of the cell that are carried out for capturing energy are called
- Catabolism.
 - Metabolism.
 - Anabolism.
 - Activation Energy.
7. The smallest unit of the listed measurements is
- Nanometer.
 - Meter.
 - Milimeter.
 - Micrometer.
8. The time required to kill 90% of the microorganism in a sample at a specific temperature is the
- Decimal reduction time.
 - Thermal death point.
 - F value.
 - D value.



9. When a canning procedure is not properly followed, a certain type of microbe is likely to grow in the canned food
- Obligate aerobe.
 - Obligate Anaerobe.
 - Acidophile.
 - Mesophile.
10. _____ molecules of carbon dioxide will be given off during ten cycle of the Krebs Cycle
- 10.
 - 20.
 - 30.
 - 40.
11. One of the following is not true about viruses
- Replicates only within host cells.
 - Too small to be seen in a light microscope.
 - Contain only one type of nucleic acid.
 - Are acellular.
12. Show the mismatched shape
- Vibrios - comma shaped.
 - Coccus - round.
 - Bacillus - flexible and wavy.
 - Spirillum - corkscrew shaped.
13. Lipopolysaccharide;
- Is found in the periplasmic space.
 - Is found in all bacterial cell wall.
 - Is found in cells that appear purple after the gram stain.
 - Is extremely thick in gram positive bacteria.
14. Spontaneous generation is associated with one of the following
- Aseptic techniques.
 - Life form pre-existing cells.
 - Germ theory of disease.
 - Life from non living matter.

Reg No:

15. The term used to describe flagella that are found all over the surface of the bacteria cell is
- a) Peritrichous.
 - b) Monotrichous.
 - c) Amphitrichous.
 - d) Lophotrichous.
16. The fundamental unit of a living body is
- a) Cell.
 - b) Cell wall.
 - c) Cytoplasm.
 - d) Nucleus.
17. *Cryptococcus neoformans* is an opportunistic organism isolated from
- a) Blood.
 - b) Urine.
 - c) Stool.
 - d) Cerebrospinal Fluid.
18. Periplasma is
- a) The area between the inner and outer membrane of gram negative bacteria
 - b) The area between the inner and outer membrane of gram positive bacteria
 - c) The inner portion of mitochondria
 - d) The area outside the cell membrane that is influenced by the polymers
19. Enzymes are;
- a) Organic compounds produced by living organisms
 - b) Inorganic compounds produced by living organisms
 - c) Both organic and inorganic compounds
 - d) Complex compounds
20. State the type of *Clostridium perfringens* that produces alpha toxins most abundantly.
- a) Type A
 - b) Type B
 - c) Type C
 - d) Type D



SECTION B: Answer ALL the questions in this section (40 marks): use the answer booklet provided.

- 1) Based on PH, outline three categories of bacteria and give example of each (3 marks)
- 2) State limitations of antimicrobial chemotherapy (4 marks)
- 3) State 4 Koch's postulates about disease agents in relation to disease that led to development of current culture techniques as employed in isolation of bacteria (4 marks)
- 4) State the structural difference between a gram+ve and a gram - ve bacteria (4 marks)
- 5) Classify the types of culture medium giving examples of each. (4 marks)
- 6) State four dry heat sterilization techniques and give examples (4 marks)
- 7) With the aid of a well labelled diagram explain various phases plotted against time in a bacteria growth curve. (8 marks)
- 8) Explain 3 mechanisms of drug resistance. (6 marks)
- 9) State 3 major parts that constitute of a flagellum (3 marks)

SECTION C: Answer ALL the questions in this section (40 marks): use the answer booklet provided.

- 1) Juma presents to the clinic with low-grade fever, malaise, trouble swallowing and sore throat.
 - a) Explain the morphology of corynebacterium diphtheria. (4 marks)
 - b) Explain the risk factors associated with corynebacterium diphtheria (4 marks)
 - c) Describe the complications that would arise if corynebacterium diphtheria is left untreated. (6 marks)
 - d) Explain the laboratory diagnosis of corynebacterium diphtheria (6 marks)
- 2) Vibrio cholerae is a causative agent of cholera which presents with life threatening secretory diarrhea.
 - a) Distinguish between vibrio cholera and vibrio parahaemolyticus. (4 marks)
 - b) Explain the pathogenesis of vibrio cholera (4 marks)
 - c) Explain clinical manifestations of vibrios cholera. (6 marks)
 - d) State the management and prevention of vibrios cholera. (6 marks)

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