



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF MEDICAL SCIENCES

UNIVERSITY EXAMINATION FOR:

DEGREE

AML 4202 : MEDICAL BACTERIOLOGY I

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2016

TIME: 3 HOURS

DATE: Pick Date Dec 2016

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **TWO** Section(s). Attempt ALL questions.

Circle the correct answer in section A.

Section A

1. Which of the following is utilized by bacteria to produce pink color colonies in MacConkey?

- a) Glucose
- b) Lactose
- c) Tryptophan
- d) Glycine
- e) Alanine

2. Which of the following structures protect bacteria from phagocytosis?

- a) Peptidoglycan
- b) Chromosomal DNA
- c) Extra chromosomal DNA
- d) Cytoplasm
- e) Capsule

3. Alexander Fleming is associated with the discovery of _____
- a) Antibiotics
 - b) Enzymes
 - c) Fungi
 - d) Animalcules
 - e) Vaccines
4. Which of the following cannot be destroyed by disinfectant?
- a) Pili
 - b) Vegetative cells
 - c) Lag phase bacteria
 - d) Spores
 - e) Motile bacteria
5. Which one of the following bacteria is most likely to be resistant to antimicrobials?
- a) Non motile bacteria
 - b) Oxidase positive
 - c) Spore formers
 - d) Bacteria with plasmid
 - e) Gram Negative
6. Transfer of DNA from one bacterium to another by a vector is called _____
- a) Conjugation
 - b) Transformation
 - c) Replication
 - d) Transduction
 - e) Mutation
7. Isolated colonies from a specimen are obtained by _____
- a) stabbing
 - b) spreading
 - c) The slant method
 - d) Lawn cultures
 - e) streaking
8. Gram variable bacteria appear as _____ cells
- a) colourless
 - b) Light pink
 - c) Light purple
 - d) Purple and Pink
 - e) Pink

9. Indian Ink staining is used for
- To replace Crystal violet
 - Gram reaction
 - Capsule staining
 - Staining of spores
 - Staining the cytoplasm
10. Which of the following bacteria require sodium chloride for growth?
- Halotolerant
 - Halophilic bacteria
 - Anaerobic bacteria
 - Mesophiles
 - Mutants
11. Which of the following may cause bacteria to produce spores?
- Lack of nutrients
 - Addition of supplements
 - Aeration of media
 - Lack of antimicrobial molecules
 - Neutral pH
12. Mueller Hinton agar is used for _____
- Antimicrobial susceptibility tests
 - Storage of bacteria at -70°C
 - Isolation of fastidious bacteria
 - As enrichment media
 - For testing motility
13. Which of the following bacteria produce green pigments in nutrient agar?
- Staphylococcus
 - Pseudomonas
 - Sarcina
 - Norcadia
 - Mycobacteria
14. The Polymerase chain reaction is used to detect_____
- Amino acid sequence
 - Fatty acid polymers
 - Specific genes
 - Chain arrangements
 - Gas production in bacteria

15. Which of the following microorganisms can be isolated from hot springs?
- a) Lactobacilli
 - b) *Staphylococcus aureus*
 - c) *Escherichia coli*
 - d) *Bacillus stearothermophilus*
 - e) Candida
16. Which of the following is produced by bacteria that form black colonies in SS agar?
- a) Charcoal
 - b) H₂O₂
 - c) Pyruvic acid
 - d) CO₂
 - e) H₂S
17. The following is used by bacteria for attachment _____
- a) Cell wall
 - b) Plasmid
 - c) Capsule
 - d) Flagella
 - e) fimbriae
18. Which of the following specimen contain normal bacterial flora?
- a) Urine
 - b) Cerebral spinal fluid
 - c) Bone marrow
 - d) Stool
 - e) Blood
19. The following is correct on preparation of blood agar medium except _____
- a) Medium is cooled to 45°C before adding blood
 - b) Blood agar base is autoclaved at 121°C
 - c) Blood is added before autoclaving
 - d) Medium is poured in sterile Petri dishes
 - e) Whole blood is used for medium preparation
20. Tyndallization is the process of _____
- a) Checking UV-radiation
 - b) Destroying bacterial spores
 - c) Confirming sterilization of autoclaved materials
 - d) Filtering heat labile material
 - e) Softening bacterial culture medium

21. The structure that generally differentiates motile and non motile bacteria is the _____

- a) Flagella
- b) cilia
- c) fimbriae
- d) Pseudopodia
- e) Brownian movement

22. Which of the following bacteria appears as a chain of bead under the microscope

- a) *Staphylococcus*
- b) *Streptococcus*
- c) *Bacillus*
- d) *Sarciana*
- e) *Mycoplasma*

23. Haemolytic colonies in blood agar appear as

- a) Colony with clear zone
- b) Shapeless colonies
- c) Mucoid
- d) Red colonies
- e) Network of colonies

24. The Archaea can grow optimally at temperatures of _____ °C

- a) 72
- b) 35.2
- c) 37
- d) 1000
- e) 25

25. The first name that was given to microscopic living things was

- a) Germs
- b) maggots
- c) fungi
- d) flagellates
- e) Animalicules

26. Which of the following microbe is not a bacterium

- a) *Candida*
- b) *Neisseria*
- c) *Vibrio*
- d) *Bacillus*
- e) *Staphylococcus*

27. Microaerophilic bacteria will grow optimally in _____

- a) 21% oxygen
- b) Increased oxygen tension
- c) Anaerobic conditions
- d) 5% Oxygen
- e) Strict aerobic conditions

28. The following is true about agar except _____

- a) It solidifies media
- b) It melts at 100°C
- c) It is a source of sugars for bacteria
- d) It solidifies at room temperatures below 45°C
- e) It is not utilized by bacteria

29. Which of the following is observed in the Indole test

- a) Blue
- b) Red color
- c) precipitaion
- d) Hemolysis
- e) Blue color

30. Bacteria can transfer genetic material through the following except _____

- a) Binary fission
- b) Transformation
- c) Sporulation
- d) Conjugation
- e) Transduction

Section B

31. (i) Discuss the classification of bacteria according to the following

a) Flagella (5 Marks)

b) Shapes (5 Marks)

(ii) Illustrate the morphology of the prokaryotic cell (5 Marks)

(iii). Outline the properties of a good disinfectant (5 Marks)

32. Discuss in detail the environmental requirements for bacterial growth under; Temperature, Oxygen requirements, salt, and pH (20 Marks)