



TECHNICAL UNIVERSITY OF MOMBASA
Faculty of Applied & Health
Sciences

DEPARTMENT OF MEDICAL SCIENCES
CERTIFICATE IN MEDICAL LABORATORY SCIENCE (CMLS 13S)

AML 1104: MEDICAL BACTERIOLOGY I

END OF SEMESTER EXAMINATION

SERIES: APRIL 2014

TIME ALLOWED: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

Answer **ALL** questions

This paper consists of **SEVEN** printed pages

Question One (Compulsory)

1. The major achievements of Robert Koch include the following except:
 - a) Discovery of causative agents of tuberculosis and cholera
 - b) Discovery and use of solid medium in bacteriology
 - c) Koch's postulates
 - d) Discovery of streptococci

2. The following are components of cell wall of Gram negative bacteria except:
 - a) Teichoic acid
 - b) Lipoprotein
 - c) Peptidoglycan and phospholipid
 - d) Lipopolysaccharide

3. Which of the following statement is correct:
 - a) Peritrichous – Bacteria with bunch of flagella at one pole
 - b) Laphotrichous – Bacteria with flagella at both poles
 - c) Atrichous – Bacteria with single polar flagellium
 - d) Aruphitrichous – Bacteria with flagella at both poles

4. In gram staining, technique, gram positive bacteria appear.
 - a) Pink
 - b) Dark purple
 - c) Red
 - d) Pinkish purple

5. Which of the following Micro-organisms belong to Risk group 3
 - a) Staphylococci
 - b) Brucella species
 - c) Streptococci
 - d) Bacillus subtilis

6. Round or oval shaped bacteria are known as:
 - a) Bacilli
 - b) Cocci
 - c) Spirila
 - d) Vibrios

7. The following are gram positive cocci bacteria except:
 - a) Staphlococcus
 - b) Streptococcus
 - c) Clostridium
 - d) Enterococcus

8. Bacteria multiply by simple cell division known as:
 - a) Binary fusion
 - b) Binary fission
 - c) Binary fition

- d) Binary replication
9. Coagulase test is used for:
- Staphylococcus
 - Salmonella
 - Streptococcus
 - Neisseria
10. What are microaerophiles bacteria
- Bacteria which requires free oxygen to grow
 - Bacteria which requires/grow best in conditions of reduced oxygen concentration
 - Bacteria which are unable to grow in free oxygen
 - Bacteria which can grow in conditions in which oxygen is present or absent
11. Mesosomes are the part of:
- Plasma membrane
 - Lysosomes
 - Cell wall
 - Cytoplasm
12. Which of the following is an example of a spirochete?
- Gonococci
 - Streptococci
 - Treponema pallidum
 - Staphylococci
13. Rod shaped bacteria are known as:
- Cocci
 - Comma forms
 - Bacilli
 - Phemorphic forms
14. Gram negative bacteria appear as:
- Pink
 - Violet
 - a and b
 - Purple
15. If only one stain is used for staining a specimen the technique is known as:
- Simple staining
 - Negative staining
 - Differentiation staining
 - Positive staining
16. The groups of bacteria which depends on organic sources in nature for their energy requirements. They are said to be:
- Chemotrophs
 - Phototrophs
 - Heterotrophs
 - Organotrophs

17. Acid fast bacteria are:
- a) Neisseria
 - b) Staphylococci
 - c) Mycobacteria
 - d) Streptococci
18. Teichoic acid is:
- a) Found in the walls of Gram positive bacteria
 - b) Make up outer wall of Gram negative bacteria
 - c) Influence the permeability of the cell membrane
 - d) a and b
19. Ziehl – Nelson stain is a:
- a) Simple stain
 - b) Differential stain
 - c) Counter stain
 - d) None of the above
20. Mycobacteria are stained with:
- a) Z – N stain
 - b) Gram stain
 - c) Simple staining
 - d) a and B
21. Lysol is a:
- a) Sterilent
 - b) Disinfectant
 - c) Antiseptic
 - d) Antifungal agent
22. Which of the following is an example of negative stain:
- a) Carbol fuchsin
 - b) Crystal violet
 - c) Negrosin stain
 - d) Meythylene blue
23. In autoclave, the principle involved is:
- a) Dry heat
 - b) Moist heat
 - c) Steam under pressure
 - d) Hot air
24. Example of anaerobic medium
- a) Wilson blair medium
 - b) Mac conkey broth
 - c) Robertson’s cooked meat medium
 - d) Blood agar

25. Which among the following is a filamentous bacteria:
- Mycoplasmas
 - Spirochetes
 - Actinomycetes
 - Vibrios
26. The major constituents in agar are:
- Fats
 - Amino acids
 - Polysaccharides
 - Polypeptides
27. The organisms which can grow both in presence and absence of oxygen are:
- Aerobes
 - Anaerobes
 - Facultative anaerobes
 - Strict aerobes
28. Mycotoxins are formed during the end of:
- Lag phase
 - Log phase
 - Death phase
 - Stationary phase
29. The most active stage in the sigmoid curve of bacteria in which maximum growth is attained is known as:
- Lag phase
 - Stationary phase
 - Decline phase
 - Log phase
30. Log-phase is also known as:
- Death phase
 - Exponential phase
 - Lag-phase
 - Decline phase
31. Nutrient agar is an example of:
- Enriched media
 - Simple media
 - Enrichment media
 - Selective media
32. Iodine solution in gram stain act as:
- Mordant
 - Decolouriser
 - Basic stain
 - Counter stain

33. The following are factors affecting the effectiveness of disinfectant except:
- Time
 - Concentration
 - Type of microbes
 - All of the above
34. What is sterilization:
- Process of reducing the microbial load for safe handling
 - Process of destroying or eliminating all micro-organism
 - Process of destroying micro-organisms using an autoclave
 - Process of eliminating all micro-organisms using high temperature
35. Which is the major distinguishing feature between Eukaryotes and prokaryotes:
- Cell membrane
 - Mesosomes
 - Ribosomes
 - Nuclear envelop
36. The essential requirements for bacterial growth include the following except:
- pH
 - Air
 - Temperature
 - Humidity
37. The following are safety precautions in the laboratory except:
- Wearing laboratory coat
 - Disinfecting contaminated benches and tools
 - Put on closed shoes always
 - Good maintenance of laboratory equipments
38. The presence of flagella in bacterial cell is detected by the following methods except:
- Motility media
 - Hanging drop preparation
 - Swarming phenomenon surface of plate agar
 - Special staining methods e.g. Gram stain
39. The following are common ingredients of broth/fluid culture media except:
- Carbohydrates
 - Meat extract
 - Peptone
 - Agar
40. Which of the following is an example of basic media:
- Nutrient broth
 - Blood agar
 - Chocolate agar
 - Alkaline peptone water

SECTION B

Question One

Discuss bacterial growth curve **(20 marks)**

Question Two

a) Discuss the structure of bacterial cell **(10 marks)**

b) Outline the different types of equipment and apparatus used in the medical bacteriology laboratory **(10 marks)**

Question Three

a) Define disinfection **(2 marks)**

b) Discuss the different types of disinfectants **(8 marks)**

c) Outline the properties of ideal disinfectants and the factors affecting effectiveness of disinfectants. **(10 marks)**