



**THE COPPERBELT UNIVERSITY**  
**SCHOOL OF MEDICINE**

**End of term test: June 2024**

**MBS 240**

**Term 1- Laboratory Sciences**

**Name:** \_\_\_\_\_

**Student ID Number:** \_\_\_\_\_

**Program:** \_\_\_\_\_

**Time: 1 hr and 15 minutes.**

**Instructions:**

**Section A: Multiple choice Questions (20 marks).**

Choose one correct answer and circle the letter in front of it. e.g. (C)

There are 20 questions

Answer all questions

**Section B: Short answer questions (30 marks).**

Write short notes on 3 out of the 5 questions.

10 Marks are allocated to each question.

Write your Student ID number on top of each page of the answer book.

## **Section A. Multiple choice questions.**

### **Single answer questions**

1. In the definition of Evidence Based Medicine (EBM) the word "best" means:
  - a) Being honest
  - b) Stating something exactly
  - c) Necessity for critical appraisal
  - d) Having sense of good judgment
  - e) Any of the above
2. Which question in Laboratory Medicine would address the risk of a condition in a patient?
  - a) What is the diagnosis?
  - b) What is the patient's prognosis?
  - c) How is the patient doing?
  - d) Anything else wrong with the patient?
  - e) None of the above
3. Which one of the following is FALSE about Class III Biosafety cabinet?
  - a) It is most suitable for work with biohazardous agents
  - b) The cabinet is not completely enclosed
  - c) The cabinet is HEPA filter-ventilated
  - d) The cabinet offers the highest degree of personal protection
  - e) None of the above
4. One of the following is NOT a Tissue change due to parasitic infection?
  - a) Fatty degeneration
  - b) Hyperplasia
  - c) Hypertrophy
  - d) Neoplasia
  - e) None of the above
5. Entomology is the study of:
  - a) Ticks
  - b) Mites
  - c) Crabs
  - d) Insects
  - e) All of the above

6. The most commonly used anticoagulant in haematological examinations is:
- a) Warfarin
  - b) Heparin
  - c) Ethylene Diamine Tetra Acetic Acid (EDTA)
  - d) Trisodium citrate
  - e) None of the above
7. Blood cells that play an important role in parasitic infections are:
- a) Platelets
  - b) Eosinophils
  - c) Lymphocytes
  - d) Red blood cells
  - e) Any of the above
8. One of the following is FALSE about requesting laboratory tests for Biochemical disorders in the Resting state:
- a) Secretory organ function can be assessed
  - b) Excretory organ function can be assessed
  - c) Minor abnormality can be detected
  - d) Major abnormality can be detected
  - e) None of the above
9. The modern virus classification was developed by
- a) Martinus Willem Beijerinck
  - b) David Baltimore
  - c) Good pasture
  - d) Dmitri Ivanowsky
10. Which one of the following is the largest virus?
- a) Influenza virus
  - b) Tobacco mosaic virus
  - c) Poxvirus
  - d) Parvovirus
11. Which one of the following viruses produces Negri bodies?
- a) Herpes simplex virus
  - b) Adenovirus
  - c) Influenza virus
  - d) Rabies virus

12. The following is TRUE about Bacteria, except
- a) They are single celled
  - b) They have mitochondria
  - c) They reproduce sexually
  - d) They reproduce asexually
  - e) They are unicellular
13. The following bacteria do not produce endospores, except,
- a) *E.coli*
  - b) *Mycobacterium tuberculosis*
  - c) *Clostridium*
  - d) *Vibrio cholerae*
  - e) *Treponema pallidum*
14. The following is True about bacteria oxygen requirements, except,
- a) Obligate aerobes require  $O_2$  for growth & metabolism
  - b) Capnophilic grow in high concentration of oxygen
  - c) Obligate anaerobes cannot grow in the presence of  $O_2$
  - d) Facultative anaerobes grow in either the presence or absence of  $O_2$
  - e) Microaerophilic grow in reduced Oxygen concentration
15. During slide preparation for microscopic examinations:
- a) Fixation is the treatment of cells with a mild surfactant which dissolves the cell membrane.
  - b) Auramine-rhodamine is fluorescent dye that stains acid fast organisms.
  - c) The gram stain is used to detect blood parasites.
  - d) Potassium hydroxide is used as a contrast stain.
  - e) India ink is used to differentiate gram positive bacteria from gram negative bacteria.
16. With regards to microscopic methods:
- a) Fluorescent microscopy has a higher resolution than an electron microscopy.
  - b) All microscopes require staining of the specimen before visualisation.
  - c) Brightfield microscopy creates a 3D image.
  - d) Darkfield microscopy causes the specimen to appear dark against an illuminated background.
  - e) The phase contrast microscope relies on the principle of light being dispersed according to specimen density.

17. Which of the following statements on the parts of the microscope is correct?

- a) The condenser magnifies the specimen.
- b) The ocular lenses on the light microscope typically have a magnification of 100x.
- c) The magnification of a microscope is determined by the power of the ocular and objective lenses.
- d) The phase contrast uses a mercury lamp as a light source.
- e) All of the above.

18. What type of immune cell is responsible for producing antibodies?

- a) T cell
- b) B cell
- c) Macrophage
- d) Natural killer cell

19. Which type of immunity is acquired through vaccination?

- a) Innate immunity
- b) Adaptive immunity
- c) Passive immunity
- d) Natural immunity

20. Which immune cell is responsible for cell-mediated immunity?

- a) B cell
- b) T cell
- c) Macrophage
- d) Natural killer cell



**Section B. Short answer questions.**

**Choose 3 out of the 5 questions.**

1. Discuss the morphology, structure, and symmetry of the virus with suitable examples.
2. Of what relevance is Normal range in laboratory investigations of Biochemical diseases?  
List the factors that affect Normal range.
3. Compare gram positive and gram negative bacteria
4. What is Parasitism? How would you classify parasites and Hosts in Parasitism? Which factors affect the distribution of parasites in the world?
5. Compare and contrast features of prokaryotic and eukaryotic cells.

**END OF TEST**