



## **MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY**

P.O. Box 972-60200 - Meru-Kenya

Tel: +254(0) 799 529 958, +254(0) 799 529 959, + 254 (0) 712 524 293,

Website: [info@must.ac.ke](mailto:info@must.ac.ke) Email: [info@must.ac.ke](mailto:info@must.ac.ke)

---

### **University Examinations 2024/2025**

#### **FOURTH YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICAL MICROBIOLOGY**

#### **HMM 3414: GENERAL AND SYSTEMIC PATHOLOGY**

**DATE: JANUARY 2025**

**TIME: 3 HOURS**

#### **INSTRUCTIONS:**

Answer *All* questions

*Ensure that all your answers are properly numbered*

*Part I multiple Choice Questions (MCQ): Write the correct answer on the space provided in the answer booklet. Each MCQ is one mark*

*Part II: Short Answer Questions – Answer questions following each other on the answer booklet*

*Part III: Long Answer Questions – Answer each question on the answer booklet*

---

#### **SECTION A: MULTIPLE CHOICE QUESTIONS (20 marks)**

1. Which of the following is an example of reversible cell injury?
  - a. Apoptosis
  - b. Necrosis
  - c. Cellular swelling
  - d. Coagulative necrosis
  
2. What is the primary cause of cell injury in hypoxia?
  - a. Protein denaturation
  - b. ATP depletion
  - c. Free radical formation

- d. Calcium influx

3. Which type of necrosis is most commonly associated with tuberculosis?

- a. Liquefactive necrosis
- b. Coagulative necrosis
- c. Fat necrosis
- d. Caseous necrosis

4. Hypertrophy refers to:

- a. Increase in cell number
- b. Increase in cell size
- c. Decrease in cell size
- d. Decrease in cell number

5. What is the most common cause of fatty liver (steatosis)?

- a. Alcohol consumption
- b. Viral hepatitis
- c. Iron overload
- d. Hypoxia

6. Which of the following is a cardinal sign of inflammation?

- a. Fever
- b. Redness
- c. Swelling
- d. All of the above

7. Histamine is primarily released from which cells during inflammation?

- a. Lymphocytes
- b. Neutrophils
- c. Macrophages
- d. Mast cells

8. Which cytokine is mainly responsible for inducing fever during inflammation?

- a. IL-1
- b. IL-2

- c. IL-4
- d. IL-10

9. What type of cells are primarily involved in chronic inflammation?

- a. Neutrophils
- b. Eosinophils
- c. Macrophages and lymphocytes
- d. Platelets

10. Which of the following is not a component of the acute inflammatory response?

- a. Increased vascular permeability
- b. Leukocyte migration
- c. Fibrosis
- d. Vasodilation

11. Which type of edema is typically caused by left-sided heart failure?

- a. Peripheral edema
- b. Pulmonary edema
- c. Cerebral edema
- d. Ascites

12. What is a thrombus?

- a. A blood clot within a blood vessel
- b. A solid mass of cells in tissues
- c. A collection of white blood cells
- d. A localized collection of pus

13. Which of the following is not a predisposing factor for deep vein thrombosis (DVT)?

- a. Prolonged immobility
- b. Pregnancy
- c. Low blood pressure
- d. Oral contraceptive use

14. Which of the following terms describes the accumulation of fluid in the peritoneal cavity?

- a. Ascites

- b. Pleural effusion
- c. Anasarca
- d. Edema

15. Which of the following is a major risk factor for atherosclerosis?

- a. High LDL cholesterol
- b. Low HDL cholesterol
- c. Hypertension
- d. All of the above

16. Which of the following is a characteristic of benign tumors?

- a. Invasive growth
- b. Rapid mitotic rate
- c. Encapsulated
- d. Metastasis

17. What term describes the ability of cancer cells to spread to distant organs?

- a. Hypertrophy
- b. Hyperplasia
- c. Metastasis
- d. Dysplasia

18. Carcinomas arise from which type of tissue?

- a. Connective tissue
- b. Epithelial tissue
- c. Nervous tissue
- d. Muscle tissue

19. Which of the following genes is commonly known as a tumor suppressor gene?

- a. Ras
- b. p53
- c. Myc
- d. Bcl-2

20. What is the most common cancer in men worldwide?

- a. Lung cancer
- b. Prostate cancer
- c. Colorectal cancer
- d. Liver cancer

### **SECTION B: SHORT ANSWER ALL QUESTIONS (40 MARKS)**

- 1. Describe the process of inflammation and its cardinal signs. 6mks
- 2. Discuss the mechanisms of tissue repair and the differences between primary and secondary intention healing 6mks
- 3. Describe the causes of Cell Injury 6mks
- 4. Describe three classification of Amyloidosis 6mks
- 5. Describe mechanism of apoptosis 6mks
- 6. Describe mechanisms of Water Homeostasis 4mks

### **SECTION C: LONG ANSWER TWO QUESTIONS (40 MARKS)**

- 1. Discuss the Morphological Types of Necrosis 12mks
- 2. Discuss the mechanisms of Necrosis 8mks
- 3. Discuss Systemic Effects of Inflammation 10mks
- 4. Explain 5 Clinical Presentations of Acute Inflammation 10mks
- 5. Tabulate the comparisons between benign and malignant tumors. 20mks