



**MAASAI MARA UNIVERSITY**  
**REGULAR UNIVERSITY EXAMINATIONS 2023/2024**  
**ACADEMIC YEAR**  
**FIRST YEAR SECOND SEMESTER**

**SCHOOL OF TOURISM AND NATURAL RESOURCE  
MANAGEMENT**

**BACHELOR OF SCIENCE IN ANIMAL HEALTH AND  
PRODUCTION**

**COURSE CODE: AHP 1206-1**

**COURSE TITLE: HISTOLOGY AND CELL BIOLOGY  
THEORY PAPER**

**DATE: 17/5/24** **TIME: 1100-1300HRS**

**INSTRUCTIONS TO CANDIDATES**

Answer ALL questions

*This paper consists of 2 printed pages. Please turn over*

## **HISTOLOGY AND CELL BIOLOGY (120 marks)**

1. Name 5 specialized proteins that are embedded in the phospholipid bilayer and briefly describe their structure and function **(20 marks)**.
2. Define the terms osmosis and diffusion and describe simple experiments that illustrate these two concepts **(20 marks)**.
3. Sketch a schematic representation of a typical mammalian cell, clearly labeling its organelles. Explain the function of at least 10 organelles depicted in your diagram **(20 marks)**.
4. Compare and contrast the structure and function of epithelial, connective, muscle, and nervous tissues in mammals. Provide examples of organs or systems where each type of tissue is predominant and explain their respective roles **(20 marks)**.
5. Select one organ system between the mammalian digestive or respiratory system and provide a comprehensive description of its histology **(20 marks)**.
6. a. Explain how a light microscope works, including its magnification range **(10 marks)**.  
b. Discuss the purpose of staining in histology **(10 marks)**

**END//**



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**SCHOOL OF NATURAL RESOURCE AND ANIMAL  
SCIENCES**

**BACHELOR OF SCIENCE IN ANIMAL HEALTH AND  
PRODUCTION**

**COURSE CODE AHP 1206-01**

**COURSE TITLE: HISTOLOGY AND CELL BIOLOGY**

**DATE: 17/5/24 TIME: 1100-1300HRS**

**INSTRUCTIONS TO CANDIDATES**

Answer **ALL** questions

## **HISTOLOGY AND CELL BIOLOGY [20 Marks]**

1. List the four main steps involved in histological processing of tissue samples. **(4 Marks)**
2. Mention one commonly used fixative in the processing of histological samples. **(1 Mark)**
3. Mention one reason for conducting a histological examination. **(1 Mark)**
4. a. Identify the tissue displayed. **(1 Mark)**  
b. Identify the respective anatomical layers labelled i, ii, iii, iv. **(4 Marks)**  
c. The cell type labeled 'x' plays an important role in innate immune function. Mention the anatomical name of the cell. **(1 Mark)**
5. a. Identify the tissue displayed. **(1 Mark)**  
b. Identify the anatomical structure labelled 'A'. **(1 Mark)**  
c. Mention the function of the structure mentioned in 5b above. **(1 Mark)**
6. a. Identify the anatomical name of organ displayed **(1 Mark)**  
b. Identify the part labeled 'C' **(1 Mark)**  
c. Briefly mention the function of the structure named in 6b above **(1 Mark)**
7. a. Identify the part labeled 'G' **(1 Mark)**  
b. Mention the type of epithelium that lines the part labeled 'G' **(1 Mark)**