

W1-2-60-1-6

**JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY**

**UNIVERSITY EXAMINATIONS 2013/2014**

**YEAR I SEMESTER I EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE OF BIOENGINEERING, BACHELOR OF SCIENCE OF MEDICAL BIOCHEMISTRY, BACHELOR OF SCIENCE OF INDUSTRIAL BIOTECHNOLOGY**

**HBB 2104: THE CELL AND ITS EXTERNAL ENVIRONMENT**

**DATE: DECEMBER 2013 TIME: 2 HOURS**

**INSTRUCTIONS: ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS.**

**QUESTION ONE**

1. Using illustrations, describe the distinctive features and functions of the following cells;
2. Nerve cells [3 marks]
3. Red blood cells [3 marks]
4. Epithetical cells [3 marks]
5. Compare and contrast the features of prokaryotic and eukaryotic cells. [6 marks]
6. Briefly discuss the hallmarks of a cell [5 marks]
7. Briefly discuss the cell functions [8 marks]
8. What is the function of the cell vacuoles. [2 marks]

**QUESTION TWO**

1. Using a well labelled diagram, briefly describe the structure and function of a cell membrane. [6 marks]
2. Briefly discuss the functions of the endomembrane system [10 marks]
3. Outline the functions of microtubules. [4 marks]

**QUESTION THREE**

1. Giving examples discuss the cytoplasmic inclusions [8 marks]
2. Briefly discuss the functions of the following:
3. Blood [6 marks]
4. Lymph [4 marks]
5. What causes epidermolysis bullosa simplex? [2 marks]

**QUESTION FOUR**

1. Outline the ultrastructure of a prokaryotic cell [10 marks]
2. Discuss the extracellular matrix in mammals [10 marks]