CHUKA  **UNIVERSITY**

UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE (AGED,FOST, BIOC), BACHELOR OF EDUCATION

ZOOL 232: CELL BIOLOGY

STREAMS: **TIME: 2 HOURS**

DAY/DATE: THURSDAY 13/12/2018 **11.30 A.M – 1.30 P.M**

INSSTRUCTIONS:

- **Answer all questions in section A and two in section B**
- **Do not write on the question paper**

SECTION A (30 MARKS)

1. (a) Name a cell organelle that perform the following functions:
   - (i) Synthesis of phospholipids. [1 mark]
   - (ii) Glycosylation [1 marks]
   - (iii) Storage of calcium ions [1 mark]
   - (iv) Detoxification [1 mark]
   - (v) Destruction of worn out organelles. [1 mark]
2. Distinguish between prokaryotic and eukaryotic cells. [5 marks]
3. (a) Outline three roles of microfilament. [3 marks]
   (b) Identify the type of intermediate filament located in;
   - (i) Muscle [1 mark]
   - (ii) Neuron [1 mark]
   - (iii) Skin epidermis [1 mark]
4. Outline the events that occur during meiotic prophase. [5 marks]
5. Using examples outline the role of cell junctions. [5 marks]
6. Explain briefly the role of membrane proteins. [5 Marks]

7. Distinguish between the following terms; [5 marks]
   (i) Chromosomal and mitochondrial DNA
   (ii) Autophagy and heterophagy
   (iii) Euchromatin and heterochromation
   (iv) Nucleoid and nucleosome
   (v) Bacterial and plant cell walls. [5 marks]
8. State the functions of the following cell structures. [6 marks]
   (a) Eukaryotic glycocalyx
   (b) Capsule
   (c) Pili
9. Describe briefly types of cell signaling. [5 marks]
10. Outline the functions of biological membranes. [5 marks]

SECTION B (40 MARKS)

11. Describe the mechanism involved in the transportation of materials across the plasma membrane. [20 marks]
12. Describe the structure and functions of the mitochondrion. [20 marks]
