



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE & TECHNOLOGY**  
**SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCES**  
**DEPARTMENT OF BIOLOGICAL SCIENCES**  
**UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN**  
**BIOLOGICAL SCIENCES**  
**1<sup>st</sup> YEAR 2<sup>nd</sup> SEMESTER 2016/2017 ACADEMIC YEAR**  
**MAIN CAMPUS - REGULAR**

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**COURSE CODE: SBI 3121**

**COURSE TITLE: CELL BIOLOGY**

**EXAM VENUE: LAB 1 2<sup>ND</sup> FL**

**STREAM: (BED. SC)**

**DATE: 21/04/17**

**EXAM SESSION: 11.30 – 1.30 PM**

**TIME: 2 HOURS**

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**Instructions:**

- 1. Answer ALL questions in Section A and Any two questions in Section B**
- 2. Candidates are advised not to write on question paper**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room**

**SECTION A: SHORT ANSWER QUESTIONS (30 marks)**

1. Define cell biology (3 marks)
2. Explain why the cell is considered as a connection point between history, philosophy, and science of cell biology. (3 marks)
3. Outline six statements that constitute the modern cell theory. (3 marks)
4. List three types of structures that are found on the outer surface of a cell membrane. (3marks)
5. Differentiate between Ribonucleic acid and deoxy-ribonucleic acid of human beings. (3 marks)
6. Outline three differences between mycoplasma and viruses. (3 marks)
7. Describe three functions of the cell wall in flowering plants. (3 marks)
8. Differentiate between prokaryotic cells and eukaryotic cells, and give an example for each. (3marks)
9. Outline three methods used in the study of cells. (3 marks)
10. Describe how the chloroplast is adapted to its function. (3 marks)

**SECTION B: ESSAY QUESTIONS (40 MARKS)**

11. Discuss the mosaic structure or model of a mammalian cell membrane. (20 marks)
12. Discuss the process of protein synthesis (20 marks)
13. Discuss the structure and functions of golgi bodies, lysosomes and endoplasmic reticula. (20 marks)
14. Draw a well labeled diagram of the mitochondrion and describe the process of oxidative phosphorylation (20 marks)