



**MASINDE MULIRO UNIVERSITY OF  
SCIENCE AND TECHNOLOGY  
(MMUST)**

**MAIN EXAMINATIONS**

**UNIVERSITY EXAMINATIONS  
2021/2022 ACADEMIC YEAR**

**FIRST YEAR END OF SEMESTER EXAMINATIONS**

**FOR THE DEGREE  
OF  
BACHELOR OF SCIENCE IN BIOLOGY / BIOTECHNOLOGY  
/ EDUCATION SCIENCE/ BIOCHEMISTRY/ AGRICULTURAL  
EDUCATION / AGRICULTURAL BIOTECHNOLOGY**

**COURSE CODE: SBL 121**

**COURSE TITLE: CELL BIOLOGY**

**DATE: WEDNESDAY, 20<sup>TH</sup> APRIL 2022      TIME: 12:00 – 2:00 P.M.**

---

**INSTRUCTIONS TO CANDIDATES**

Answer QUESTION 1 and ANY 3 QUESTIONS

TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 2 Printed Pages. Please Turn Over. 

**SECTION A (SHORT ANSWER QUESTIONS, 50 MARKS)****QUESTION 1**

- A. Name the scientists who made the following contributions in cell biology:
- Proposed the third part of the cell theory
  - Demonstrated that DNA was the heredity molecule
  - Demonstrated that DNA replicated by a semi conservative method
  - Observed bacteria replicate by dividing in a process known as binary fission
  - Discovered the nucleus in plant cells (5 marks)
- B. Giving an example, explain the concept ion trapping (5 marks)
- C. State the functions of the Golgi apparatus (5 marks)
- D. Give an account of the quality control checks in the cell cycle (5 marks)
- E. Describe the stages of prophase I of meiosis (5 marks)

**QUESTION 2 (15 marks)**

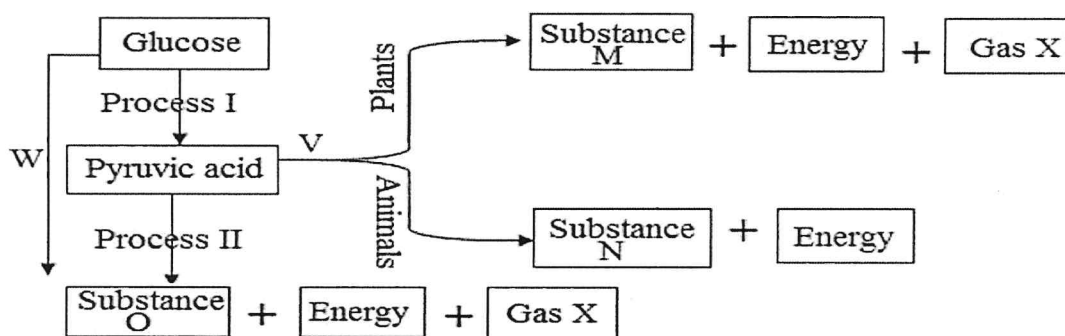
Give an account of the cell junctions and the cell adhesion molecules

**QUESTION 3 (15 marks)**

Describe the process of replication of Deoxyribonucleic acid (DNA) and state its significance

**QUESTION 4 (15 marks)**

Study the chart below to answer the questions that follows:



- Identify type of respiration W and V (2marks)
- What are the differences between W and V (3 marks)
- Name the processes I and II (2 marks)
- Where does the processes named in (iii) above occur in the cell (2 marks)
- Name substances M, N, O and gas X (4 marks)
- Name the form of energy produced (2 marks)

**QUESTION 5 (15 marks)**

Describe the mechanisms involved in the transportation of substances in the cell