**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE & TECHNOLOGY**

**SCHOOL OF BIOLOGICAL, PHYSICAL, MATHEMATICS AND ACTURIAL SCIENCES**

**UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN BIOLOGICAL SCIENCES**

**2nd YEAR 1st SEMESTER 2022/2023 ACADEMIC YEAR**

**MAIN CAMPUS - REGULAR**

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**COURSE CODE:** **SBB 1301**
**COURSE TITLE:** **DEVELOPMENTAL BIOLOGY**

**EXAM VENUE:** **STREAM: (BSC)**

**DATE: 9/12/2022** **EXAM SESSION: 9.00-11.00AM**

**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**

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## SECTION A: SHORT ANSWER QUESTIONS (30 MARKS)

1. State the differences between telolecithal and centrolecithal eggs (3 marks)
2. Describe the cortical reaction (3 marks)
3. State any three factors responsible for controlling the cleavages (3 marks)
4. State the differences between a coeloblastula and a stereoblastula (3 marks)
5. Describe three chemical changes that take place during cleavage (3 marks)
6. Distinguish between Sach's rules, Hart wig's laws and Balfour's law in cleavage (3 marks)
7. Distinguish between epiboly and involution (3 marks)
8. Explain the functions of morphogenesis (3 marks)
9. Describe the importance of embryonic induction (3 marks)
10. Describe the functions of three extra-embryonic membranes (3 marks)

## SECTION B: ESSAY QUESTIONS (40 MARKS)

11. Discuss major types of cell movements during development (20 marks)
12. Discuss vertebrate axis formation (20 marks)
13. Describe the mechanism of ectoderm differentiation (20 marks)
14. Use diagrams to discuss the formation of the neural tube (20 marks)