**JARAMOGI OGINGA ODINGA UNIVRSITY OF SCIENCE AND TECHNOLOGY**

**SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCES**

**DEPARTMENT OF BIOLOGICAL SCIENCES**

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

**FOURTH YEAR FIRST SEMESTER 2018-2019 ACADEMIC YEAR**

**MAIN CAMPUS**

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| **COURSE CODE:** | **SBT 402:** |
| **COURSE TITLE:** | **MORPHOGENESIS & ANATOMY** |
| **VENUE** | **STREAM: (BSC BIO)** |
| **DATE:** | **EXAM SESSION:** |

**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 the 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. Outline the three main types of endosperm development in angiosperms. (3 marks)
2. Describe totipotency in cells. (3 marks)
3. Provide a well labeled diagram of a female gametophyte. (3 marks)
4. Describe rapid multiplication by transfer of cultures as a procedure in tissue culture. (3 marks)
5. Explain the significance of the epidermal hairs within the dermal tissue system. (3 marks)
6. Describe the ground tissue system in plants. (3 marks)
7. Outline the pathways that may be followed by callus during development of organized structures within the shoot apex. (3marks)
8. Briefly describe the thalamus as part of a flower structure. (3 marks)
9. Explain why it is advisable to obtain explants for tissue culture from younger tissues of plants. (3 marks)
10. Describe intercalary meristem in monocots. (3 marks)

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

11. Describe the development of male gametophyte in angiosperm. (20 marks)
12. Discuss apical meristems in plants. (20 marks)
13. Describe the gynoecium in angiosperms. (20 marks)
14. Describe fertilization in angiosperms. (20 marks)