



# MAASAI MARA UNIVERSITY

UNIVERSITY SUPPLEMENTARY/SPECIAL EXAMINATIONS  
2018/2019 ACADEMIC YEAR

FOR  
THE DEGREE OF BACHELOR OF SCIENCE AND BACHELOR OF  
EDUCATION (SCIENCE)

*BOT 310: MORPHOGENESIS AND DEVELOPMENTAL ANATOMY*

DATE: 24<sup>TH</sup> APRIL, 2019

TIME: 11.00A.M. – 1.00P.M.

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## Instructions

Answer **ALL** questions in section **A** and any other **TWO** questions in section **B**

**SECTION A : ATTEMPT ALL QUESTIONS(30MKS)**

1. Define the following words:

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|------------------|--------------------|
| a) Organogenesis | b) Apical meristem |
| c) Callus        | d) Phyllotaxis     |
| e) Endosperm     | f) Parenchyma      |

- |                                                                                                                                 |                                |
|---------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| 2. Describe the categories of fruits.                                                                                           | <b>3marks</b><br><b>2marks</b> |
| 3. Describe briefly the formation of a pollen grain.                                                                            | <b>3marks</b>                  |
| 4. Illustrate the development of an embryo.                                                                                     | <b>4marks</b>                  |
| 5. Describe with illustrations, the three major zones in the tissue organization of a root.                                     | <b>3marks</b>                  |
| 6. Compare and contrast the structure and function of the different tissues in a mature monocot stem and a mature eudicot stem. | <b>6marks</b>                  |
| 7. With diagrams, discuss the formation of lateral roots.                                                                       | <b>3marks</b>                  |
| 8. What is the role of plant hormones in tissue culture?                                                                        | <b>3marks</b>                  |
| 9. Draw and label fully the structure of a shoot tip.                                                                           | <b>3marks</b>                  |

**SECTION B: ATTEMPT ANY TWO QUESTIONS (40MKS)**

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|----------------------------------------------------------------|----------------|
| 10. Trace the development of megaspore and female gametophyte. | <b>20marks</b> |
| 11. Describe the process of double fertilization.              | <b>20marks</b> |
| 12. a) With the aid of diagrams discuss tissue culture.        | <b>12marks</b> |
| b) Discuss practical applications of tissue culture.           | <b>8marks</b>  |

**....END....**