MACHAKOS UNIVERSITY

University Examinations 2018/2019

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

FOURTH YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR

BACHELOR OF SCIENCE (ANALYTICAL CHEMISTRY)

SBT 405: PLANT MORPHOGENESIS AND DEVELOPMENTAL ANATOMY

DATE: 23/7/2019 **TIME: 2.00-4.00 PM**

INSTRUCTIONS: Answer question 1 (compulsory) and any other two questions

1. a) Explain the meaning of "Polarity" as applied in plant morphogenesis (3 marks).

   b) Explain briefly the process of plant embryogenesis (3 marks)

   c) Differentiate between Periclinal and Anticlinal cell divisions (3 marks)

   d) State three functions of Auxin in Plant morphogenesis (3 marks)

   e) Describe briefly the developmental process of Apical meristems (3 marks)

   f) State three main functions of pluripotent stem cells found in shoot apical meristem (SAM). (3 marks)

   g) i What is double fertilization? (1 mark)

      ii Why is it important in angiosperms? (2 marks)

   h) Explain briefly how patterning of the gynoecium takes place in higher plants (3 marks)

   i) i What is Endosporic gametophyte? (1 mark)

      ii How does it form within the sporangium? (2 marks)

   j) Explain the concept of totipotency as a basis of Plant tissue culture technology (3 marks)

2. Discuss the process of initiation and development of the leaf. (20 marks)
3. Discuss the process of initiation and development of the inflorescence. (20 marks)
4. Discuss the process of initiation and development of the Root Apical Meristem. (20 marks)
5. Discuss the process of seed development in angiosperms (20 marks)