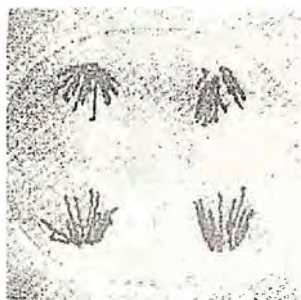


**KANGEMA/MATHIOYA FORM 4 JOINT EXAMINATION**  
**BIOLOGY**  
**PAPER 3**  
**July/August 2016**

1. a) You are provided with solution Q in a boiling tube. Take a drinking straw and gently blow into the solution watching it carefully.
- Record any change noticed. (1mark)
  - Name the excretory product responsible for the change observed in (a) (i) (1mark)
  - Name the physiological process that brought about the above observed change in (a) (i) (1 mark)
  - Write a word equation summarizing the reaction in (a) (iii) above. (2 marks)
- b) You are provided with specimens R and W. Using scalpel blade provided make a longitudinal section through the specimens R and W to obtain two identical halves.
- c) Make a large labelled drawing of specimen R.
- d) Give two differences and two similarities of structures of specimen R and W.
- Differences (2 marks)
- Similarities (2 marks)
- c) What is the function of plumule sheath in specimen W ? (2 marks)
2. Examine photographs A, B1 and B2 carefully and answer the questions that follow. B2 was extracted from B1.



- a) i) What is the name given to the coiled part labelled T found on specimen A. (1 mark)
- Name the type of response exhibited by the coiled part on specimen A
  - Explain how the response mentioned in a (ii)- above takes place.
  - State one adaptative role of the response mentioned in a (ii) to the plant.
- b) i) With a reasons identify the agent of pollination for specimen in photographs B1 and B2
- Agent (1 mark)
- Reason (1 mark)
- To which class of plants was specimen B1 and B2 obtained give a reason.
- Class (1mark)
- Reason (1 mark)
3. Study the photomicrograph provided and answer the questions that follow. Calculations and any other working must be shown in the spaces provided.



- (a) Identify the structure in the photomicrograph. (1 mark)
- (b) The structure in the photomicrograph has a magnification of X300,000. Calculate its real size. (4marks)
- (c) i) Identify the process shown in the photomicrograph. (1mark)
- Name the exact stages and phases of the process shown in the photomicrograph. (1 mark)
- (d) Name one part in plant and one part in an animal in which the process takes place.
- Plant part (1 mark)
- Animal part (1 mark)
- (e) i) Name the products of the process at its completion. (2 marks)
- Plants products
- Animal products
- Using a pencil, draw on the micrograph the boundaries of the products that will form at the end of the process. (1mark)
  - What is the significance of the process shown in the photomicrograph. (2 marks)