

KERICHO WEST FORM FOUR JOINT EVALUATION
Kenya Certificate of Secondary Education
231/3
BIOLOGY
Paper 3
(Practical)
July/August 2015

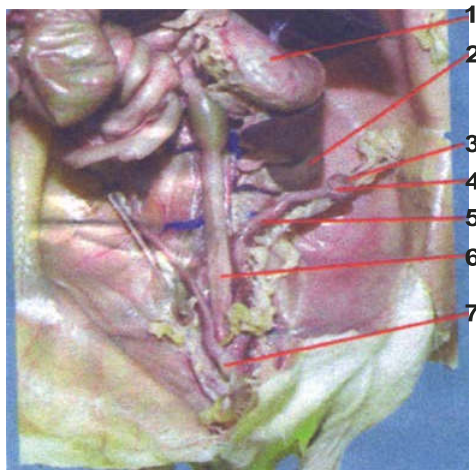
1. You are provided with the following solutions labelled E, F, G, H and J on the table.

- E - food substance
- F - dilute sodium hydrogen carbonate
- G - dilute hydrochloric acid
- H - Benedict's solution.
- Source of heat.

Carry out tests using the reagents provided to determine the food substance(s) presented in solution E (14 marks)

FOOD SUBSTANCE BEING TESTED	PROCEDURE	OBSERVATIONS	CONCLUSION

2. Examine the photograph which shows parts of the urogenital system of a female rat and answer the questions that follow. The organ marked 1 is the stomach.



- a) i) Name the organ marked 2 (1 mark)
 - ii) State two functions of the organ. (2 marks)
 - iii) What is the functional unit of the organ named in (a) (i) above? (1 mark)
 - b) i) Identify and name each of the organs marked 3 and 4. (2 marks)
 - ii) State two functions of the part marked 4. (2 marks)
 - c) i) Identify and name the organ marked 5. (2 marks)
 - ii) Explain two functions of the organ named c(i) above. (2 marks)
 - d) The organ marked 6 is the large intestine. State two functions of the large intestine. (2 marks)
3. Study the photographs A and B that shows part of plants in natural habitat.



A



B

- a) Name the type of the plant response shown in:
- i) A.....(1 mark)
 - ii) B.....(1 mark)
- b) Explain the mechanisms of the response in
- A (3 marks)
 - B (5 marks)
- c) State the biological significance of the response to plants in
- A (1 mark)
 - B (1 mark)
- d) Suggest the nature of the habitat that plants with the type of response A grows. (1 mark)

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Marking Scheme

1.

Food substance being tested	Procedure	Observation	Conclusion
Reducing sugars;	To 2ml of solution E in a test tube, add equal amount of Benedict's solution, heat to boil;	No colour change OR colour of Benedict's solution is retained;	Reducing sugars absent;
Non-reducing sugars;	To 2 ml of solution E, add dilute hydrochloric acid, warm and cool; add dilute sodium hydrogen carbonate until fizzing stops. Add Benedict's solution and heat to boil;	Colour changes from blue to green to yellow / brown / orange;	Non-reducing sugars present;
Ascorbic acid (vitamin C);	Put 2ml of DCPIP in a test tube; add solution E drop by drop and shake after each drop;	No colour change/ colour of DCPIP retained;	Ascorbic acid (vitamin C) absent

Procedure - 2 marks each for non-reducing sugar and ascorbic acid and 1 mark for reducing sugar.

Observation - 1 mark each

Conclusion - 1 mark each

Total = 12 marks

NB- When the procedure is wrong, no mark for observation and conclusion.

2. a) i) Kidney;
ii) Osmoregulation;
Excretion;
- iii) Nephron;
- b) i) 3 funnel ;
4 ovary;
- ii) site for production of ova / female gametes / secondary oocytes.;
Secretion of hormones ;
- c) i) Uterus;
ii) Site for implantation;
Nourishment and development of foetus.;
- d) Site for absorption of water;
Site for absorption of vitamins and mineral salts.;
- Propulsion of food down the alimentary canal ; (any two points)
3. a) A Nastic response / haptanasty;
B Thigmotropism;
- b) A
- The plant secretes sugary secretions that attract insects.
- Insect touch is sensitive / triggers hairs in the leaves / midrib. The midrib cells lose water by osmosis; the midrib becomes flaccid causing the trap to spring and thus trap insects due to interlocking of the spines.
B
- At the point of contact, Auxins / IAA to migrate to side away from contact; reaching to a higher auxins concentration at point away from contact than at point of contact.
- High auxin concentration stimulate shoot growth thus side away from contact grows faster than the side in contact; leading to continuous coiling of the shoot / tendrils along support material.;
- c) A
- Enables feeding in insectivorous plant.
B
- Enables shoots of herbaceous plants to obtain support to expose leaves for photosynthesis; flower for pollination fruits and seeds for dispersal.;
- d) Nitrogen deficient soil / marshy areas.;