

**231/1**

**BIOLOGY**

**Paper 1**

**March 2013**

**Time: 2 hours**

**CROSS COUNTRY JOINT REGISTRATION EXAM – 2013**

*Kenya Certificate of Secondary Education (K.C.S.E)*

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<b>Question</b>	<b>Maximum score</b>	<b>Candidate's score</b>
<i>1-26</i>	<i>80</i>	

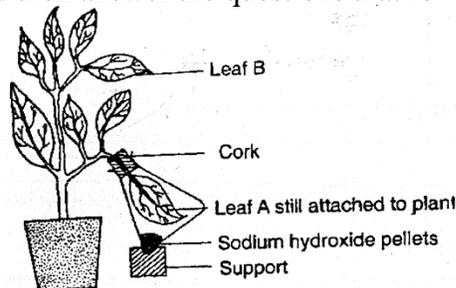
*This paper consists of 4 printed pages*

*Candidates should check the question paper to ensure  
that all the printed pages are printed as indicated and no questions are missing.*

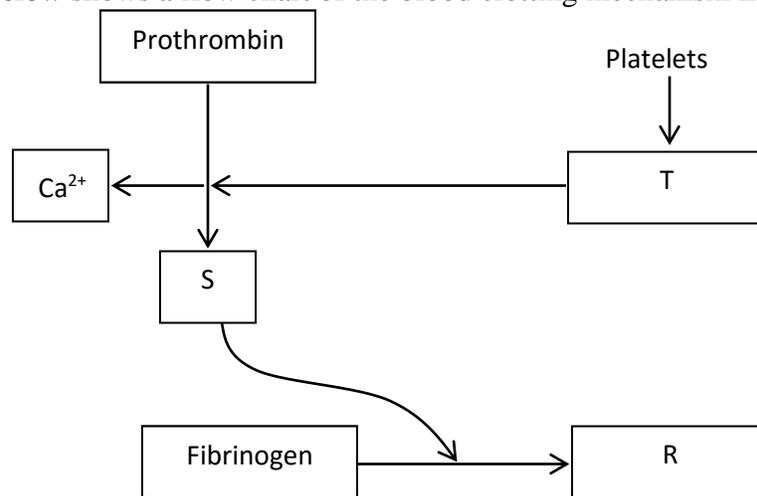
1. A potato cylinder measuring 100mm was placed in a concentrated salt solution for 30 minutes. Describe its texture and appearance after 30 minutes. (3mks)
2. a) State one adaptation of palisade cell to its function (1mk)  
 b) State the products of photolysis (2mks)
3. a) State two disadvantages of fossil records as an evidence of evolution (2mks)  
 b) What is adaptive radiation (1mk)
4. Name the structure in plants involved in the following functions (3mks)
  - a) Absorption of water
  - b) Transport of water
  - c) Translocation of food
5. a) With a reason name the structure responsible for intermittent growth in an insect
 

Structure	(1mk)
Reason	(1mk)

 b) What is the hormone responsible for growth in an insect (1mk)
6. Distinguish between taxonomy and taxon (1mk)
7. (a) *Askaris lumbricoides* is an endo-parasite living in the ileum of human beings while *Tagetes minuta* is a notorious weed on our farms. Identify the genetic parts of the organisms mentioned. (1mk)  
 (b) Under which circumstances are two organisms considered to belong to the same species? (1mk)
8. (a) Show that you understand the terms below:-
  - (i) Attenuation (1mk)
  - (ii) Antiserum (1mk)
 (b) Of what transport importance are ostia to insects? (1mk)
9. Study the diagrams below and then answer the questions that follow.



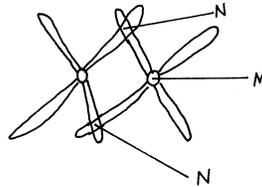
- (a) What was the aim of the experiment? (1mk)
- (b) Explain why leaf A is still attached onto the plant. (1mk)
- (c) What property of sodium hydroxide enables it to carry out its intended role? (1mk)
- (d) In the test for starch in either leaf A or B, name the role played by methylated spirit (1mk)
10. (a) Distinguish primary from secondary growth in flowering plants. (2mks)
- (b) Name a hormone in members of the class Insecta that facilitates the retention of youthfulness during metamorphosis. (1mk)
11. (a) What is mutation. (1mk)
- (b) State **three** factors that cause mutations. (3mks)
12. Most of the absorption of digested food in mammals takes place in the ileum. In what ways is it adapted for this function? (4mks)
13. In what ways are the xylem vessels adapted to their function? (4mks)
14. Describe how identical and fraternal twins are formed. (4mks)
15. The diagram **below** shows a flow chart of the blood clotting mechanism in a human being.



- (a) Name the enzymes represented by the letters. (2mks)
- T**
- S**
- (b) Name the final product of the mechanism represented by letter **R**. (1mk)
16. (a) Explain why lysosomes are sometimes called ‘suicidal bags’ (1mk)
- (b) Why are lysosomes more frequent in the phagocytotic cells than in other cells? (2mks)

17. State **three** structural differences between biceps muscles and muscles of the gut. (3mk)
18. Sugar was detected in the urine of a patient during a laboratory test. (1mk)
- (a) Name the type of sugar that was detected (1mk)
- (b) Name the hormone that is likely to have been deficient. (1mk)
- (c) What is the name given to the condition the person was suffering from? (1mk)
19. (a) What is single circulatory system? (1mk)
- (b) Name an organism which has single circulatory system. (1mk)
- (c) Name the opening to the chamber of the heart of an insect (1mk)
20. State **three** types of movable joints found in mammals. (3mks)
21. State how alveolus of the lungs of a mammal is adapted to its function. (2mks)
22. Explain the importance of roughage in the diet. (3mks)
23. Name the structures in the inner ear which are sensitive to:-
- a) Change in position (1mk)
- b) Sound waves (1mk)

24. The diagram below shows two chromosomes with their chromatids intertwined. Study it and answer the questions that follow.



- a) (i) Name the part labeled M and N (2mks)
- (ii) What is meant by a bivalent chromosome (1mk)
- b) At which stage of cell division are the above structures likely to be seen? (1mk)
25. A student observed that grass near the kitchen where waste water was poured turned yellow and dried up. Explain. (3mks)
26. Name the tissues responsible for the following.
- a) Protection of inner tissues of plants from mechanical damage and infection (1mk)
- b) Packing and storage cells in plants (1mk)
- c) Lining and protection of internal and external surfaces in animals (1mk)