

NAME INDEX NUMBER

SIGNATURE

DATE

231/1

BIOLOGY

PAPER 1

TIME: 2 HRS

JULY/AUGUST 2016

KERICHO WEST JOINT EVALUATION EXAMINATION

KENYA CERTIFICATE OF SECONDARY EDUCATION (K.C.S.E)

BIOLOGY

Paper 1

(Theory)

July/August 2016

Time: 2 hours

INSTRUCTIONS TO CANDIDATES

- Write your name and index number in the spaces provided above.
- Sign and write the date of the examination in the spaces provided above.
- Answer all the questions in the spaces provided.

FOR EXAMINER'S USE ONLY

Question	Maximum Score	Candidates Score
1-30	80	

1. State one use of each of the following apparatus in the study of living organisms.
 - a) Pooter (1 mark)

.....
 - b) Pitfall trap (1 mark)

.....
2. a) Define the term binomial nomenclature. (1 mark)

.....

.....

.....

b) The scientific name of the Irish potato is *Solanum tuberosum*. Write the scientific name correctly. (1 mark)

.....
3. Name the organelles that perform each of the following in a cell. (2 marks)
 - a) Protein synthesis
 - b) transport of cell secretions within the cell.
4. State two similarities between the mode of nutrition in a human, nematode and a mushroom. (2 marks)

.....

.....
5. The following is the dental formula of a certain animal.

$$\begin{matrix} i & c & pm & m \\ \frac{0}{4} & \frac{0}{0} & \frac{3}{3} & \frac{2}{3} \end{matrix} = 30$$

Identify with a reason the mode of feeding of the animal. (2 marks)

Mode of feeding

Reason
6. a) Name two supportive tissues in plants. (2 marks)

.....

.....

b) Name the structure that holds two separate bones at a joint in mammals. (1 mark)

.....

7. State the functions of the following minerals salts in plants.

a) Magnesium

(1 mark)

.....

b) Nitrogen

(1 mark)

.....

8. a) The type of circulatory system found in members of the class insecta is

(1 mark)

.....

b) Name the blood vessel that transports blood from;

i) Small intestines to the liver

(1 mark)

ii) Lungs to the heart

(1 mark)

9. How are lenticels adapted for gaseous exchange?

(2 marks)

.....

.....

.....

10. Name two salts in bile that aid in emulsification of fats

(2 marks)

.....

11. State three major pollutants of rivers in urban centres.

(3 marks)

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.....

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12. a) What is the meaning of the term organic evolution?

(1 mark)

.....

.....

b) Give two limitations of fossils records as evidence of evolution.

(2 marks)

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13. The diagram below shows nucleotide sequence in the DNA.



a) Identify the type of genetic mutation shown.

(1 mark)

b) State the significance of mutation in evolution.

(1 mark)

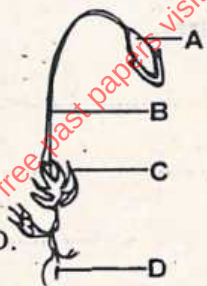
14. Name the causative agent of whooping cough in humans.

(1 mark)

15. Explain why plants do not require specialised excretory organs.

(4 marks)

16. The diagram below represents a plant in the division Bryophyta.



i) Name the part labelled B and D.

(2 marks)

B D

ii) State one function of each of the parts labelled A and C.

(2 marks)

A

C

17. How are tracheoles of insects adapted to their functions?

(2 marks)

18. State where the following phases of respiration occur in a cell. (1 mark)

i) Krebs cycle

.....

ii) Glycolysis (1 mark)

.....

19. a) Name the type of movement that occur within a cell. (1 mark)

.....

b) State two ways in which osmosis is significant to plants. (2 marks)

.....

.....

20. Differentiate between a berry and a drupe. (2 marks)

.....

.....

21. During an ecological study of a certain grassland, a group of students recorded the following organisms; Lizards, Acacia, Birds, Caterpillars, snakes.

a) Draw a possible food chain for the grassland. (1 mark)

b) In which trophic level are the lizards? (1 mark)

.....

22. a) A dog weighing 15.2kg requires 216kj while a mouse weighing 50g requires 2736kJ per day. Explain. (2 marks)

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.....

b) What is the end product of respiration in animals when there is insufficient oxygen supply? (1 mark)

.....

23. Differentiate between the following terms;

i) Dominant and recessive gene

(1 mark)

.....

.....

ii) Continuous variation and discontinuous variation.

(1 mark)

.....

.....

24. Name three chromosomal mutations.

(3 marks)

.....

.....

.....

25. a) Name the hormone produced by;

i) The testes

(1 mark)

ii) The ovaries

(1 mark)

b) State two disadvantages of sexual reproduction in animals.

(2 marks)

.....

.....

26. a) What is meant by vestigial structures?

(1 mark)

.....

.....

b) Give an example of vestigial structure in human.

(1 mark)

.....

.....

27. State the importance of divergent evolution to organisms.

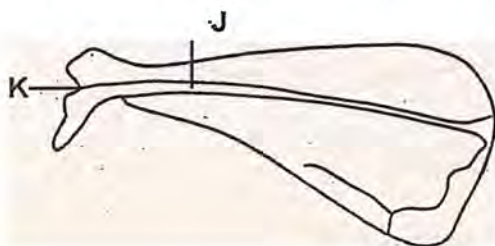
(2 marks)

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28. The diagram below represents a bone obtained from a mammal.



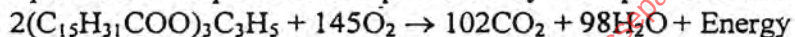
a) Name the bone (1 mark)

b) Name the;
i) Bone which articulate with the bone named in (a) above at the cavity labelled K. (1 mark)

ii) Joint formed by the two bones. (1 mark)

c) State the function of the part labelled J. (1 mark)

29. The respiration of Tripalmitia is represented by the equation below.

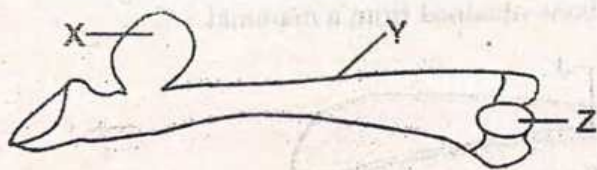


a) Calculate the respiratory quotient (RQ) of the substance Tripalmitia. (2 marks)

b) State one importance of respiratory quotient. (1 mark)

c) State two factors that affect the RQ value. (2 marks)

30. The diagram below shows part of a mammalian skeleton.



a) Identify the bone represented by the diagram.

(1 mark)

b) State the functions of structures Y and Z.

(2 marks)

c) Identify the bone that articulate at point X.

(1 mark)

d) Name the bones that articulate at the distal end of the bone represented in the diagram. (1 mark)

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