Name: ……..…… **Index No:** ……..……

School: ……..…… **Date:** ……..……

231 / 1
BIOLOGY PAPER 1
FORM FOUR
PAPER ONE
MARCH/APRIL - 2013
TIME: 2HRS

PENTAGON JOINT EXAMINATION - 2013
WARENG DISTRICT

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

FORM FOUR BIOLOGY PAPER 1

INSTRUCTIONS TO CANDIDATES.

- Write your name and index number in the space provided above
- Answer all questions in the spaces provided.

FOR EXAMINERS USE ONLY

Questions	Total Scores	Candidates Score
1-34	80	

This paper consist of 8 printed pages.
Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no question is missing.

1. Define each of the following terminologies as used in biology :- (2 marks)

a). Ecology

_____

_____

b). Anatomy

_____

_____

2. State the role of the DNA in a cell. (2 marks)

_____

_____

_____

_____

3. Name two processes that are involved in the translocation of manufactured food materials. (2 marks)

_____

_____

4. State two ways by which lactic acid formed in the muscles of an athlete is removed. (2 marks)

_____

_____

_____

_____

5. Explain why sexual reproduction is important in an organism. (2 marks)

_____

_____

_____

6. State two aspects that distinguish Lamarckian hypothesis and Darwinian theory of evolution. (2 marks)

_____

_____

7. The diagram below shows the teeth of a certain animal. Use it to answer the questions that follow.

a). Identify the mode of feeding exhibited the animal shown above. (1 mark)

Give a reason for your answer in (a) above. (1 mark)

8. Explain what would happen if the nucleus of an animal cell is removed. (2 marks)

9. Enzymes are important in various physiological processes in living things

a). Differentiate between an enzyme and a hormone. (2 marks)

b). Name the property of an enzyme exhibited by the Lock and Key Hypothesis. (1 mark)

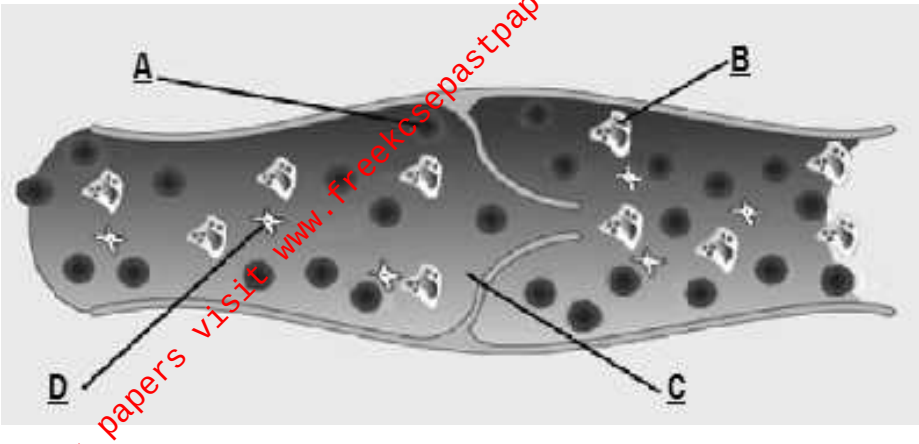
10. Outline three roles of active transport in human beings. (3 marks)

11. State the role of each of the following features found in the human gaseous exchange system : (2 marks)

a). Goblet cells

b). Rings of cartilage

12. The diagram below show a blood vessel



a) Giving a reason, identify the blood vessel shown above. (2 marks)

_____

_____

_____

_____

b) Name the enzymes present in A and D. (2 marks)

A_____

D_____

13. Give three disorders caused by non-disjunction (3 marks)

_____

_____

_____

14. Oil is one of the pollutants of water in major water bodies

a). In what ways is oil as a pollutant affect the following organisms:

i. Fish (1 mark)

_____

_____

ii. Mosquito larvae (1 mark)

_____

_____

iii. Aquatic birds (1 mark)

_____

_____

15. Name two sites for gaseous exchange in floating aquatic plants:- (2 marks)

_____

_____

16. State three qualities that a plant breeder looks at in artificial selection in breeding programmes. (3 marks)

_____

_____

_____

17. Explain what happens to a tadpole when there is insufficient iodine. (2 marks)

_____

_____

_____

18. Name the diseases caused by the following organisms.

a). Wucheraria bancrofti (1 mark)

_____

_____

b) Treponema pallidum (1 mark)

_____

_____

19. Explain why carbohydrates are stored in their polysaccharide forms in both plants and animals. (1 mark)

_____

_____

20. Define the following terms:

a) Chelicerae (1 mark)

_____

_____

b) Prothallus (1 mark)

_____

_____

c) Alteration of generation. (1 mark)

_____

_____

21. Distinguish between the growth pattern exhibited by human beings and fish. (2 marks)

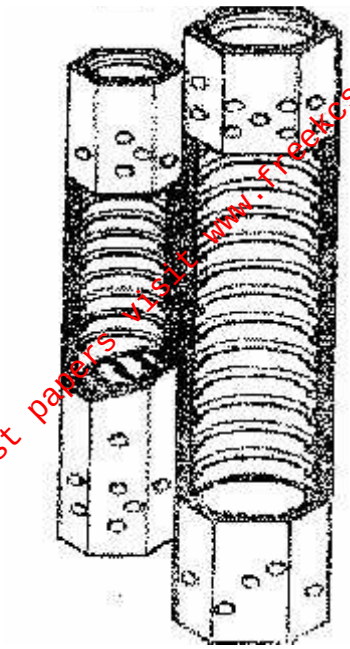
_____

_____

_____

_____

22. The cells shown below are adapted for transport in flowering plants.



a). Name the tissue in which these cells are found. (1 mark)

_____

b). Identify and explain two observable features of these cells that adapt them to their role in trans port. (2 marks)

_____

_____

_____

_____

23. A student smeared Vaseline jelly on the lower epidermis of a leaf of a potted green plant which had been kept in the dark for 24 hours. She then transferred the plant to the light for six hours. Starch test on the leaf of the plants were negative. Account for the observation. (3 marks)

_____

_____

_____

_____

_____

24. Outline two structural differences between an egg and a sperm in humans. (2 marks)

_____

_____

_____

_____

25. (a) State the advantage of desert animals excreting their nitrogenous waste in form of urea and not ammonia. (2 marks)

_____

_____

(b) State two modifications on the kidney nephron of desert mammals. (2 marks)

_____

_____

26. State two functions of gibberellins. (2marks)

_____

_____

_____

_____

27. Differentiate between facultative and obligate anaerobes (2 marks)

_____

_____

_____

_____

28. Name the bacteria involved in the conversion of ammonium compounds to nitrites. (1 mark)

_____

29. Differentiate between divergent evolution and convergent evolution. (2 marks)

_____

_____

_____

_____

30. A group of students carried out an ecological investigation on an ecosystem. They recorded the findings in the table below.

Organism	Number of individuals	Biomass (kg)
P	4000	9.8
Q	2500	2.1
R	570	0.42
S	90	0.03
T	1300	1.1

a) Write down a food chain for the ecosystem. (1 mark)

_____

b) Name the organism which;

i) Which organism is the producer in the ecosystem? 1 mark)

_____

ii) What would be the last to be affected if the ecosystem experienced a prolonged drought. (1 mark)

_____

c) Which organism recycles nutrients in ecosystem? (1 mark)

_____

31 After fertilization in flowering plants has taken place, name three structures that wither off. (3 marks)

_____

_____

_____

32. Give two structural adaptations of the chloroplast to its function. (2 marks)

_____

_____

_____

_____

33. Define the term balanced diet. (2 marks)

_____

_____

_____

_____

34. Explain why the ecosystem is said to be a self- sustaining natural unit. (1 mark)

_____

_____

_____

_____

35. State the role of the Hypocotyl in epigeal germination. (1 mark)

_____

_____