

231/1

PAPER 1

THEORY

1. State the function of Neural Canal in cervical vertebra (1mk) *Trk*
2. Explain why contractile vacuole in amoeba is surrounded by numerous mitochondria. (2mks) *Trk*
3. Which substance in cigarette smoke causes lung cancer. (1mk) *Trk*
4. State two advantages of metamorphosis to the life of an insect. (2mks) *Trk*
5. State the role of golgi apparatus, a cell organelle. (2mks) *Trk*
6. State the structures used by following organisms for locomotion:
 - (i) paramecium (1mk) *Trk*
 - (ii) Chlamydomonas (1mk) *Trk*
7. State two adaptation by a sheep that makes it a better user of food than a dog. (2mks) *Trk*
8. Give reason why xylem vessel should be dead. (1 Mark) *Trk*
9. In an investigation, the pancreatic duct of a mammal was blocked. It was found that the blood sugar regulation remained normal while digestion of food was impaired.

Explain this observation (2 Marks) *Trk*

10. State two functions of seminal fluid. (2 Marks) *Trk*

11. Tristearin has molecular formular of $C_{57}H_{108}O_6$

- (i) Write a balanced chemical equation when tristearin is completely oxidized to Carbon(IV) oxide and water. (1Mark) *Trk*
- (ii) Calculate the RQ for the process above. (1 Mark) *Trk*
- (iii) Identify the type of substrate being oxidized giving a reason. (2 Marks) *Trk*

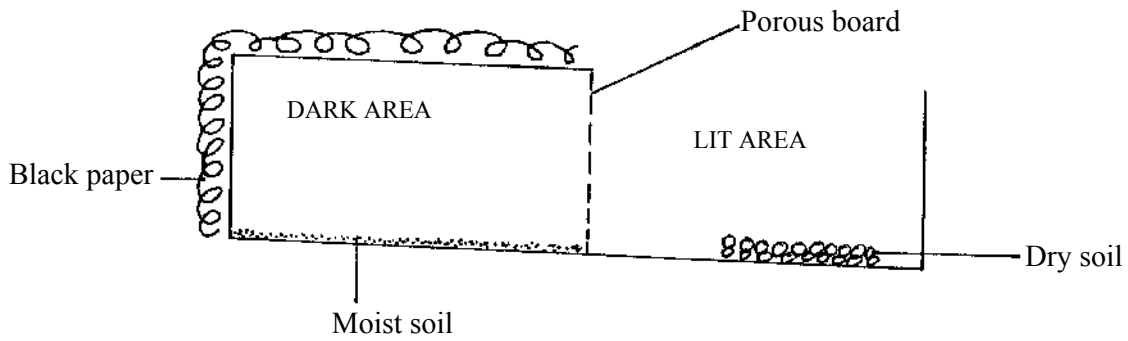
12. Identify the mode of feeding of the animal whose dental formula is given below.



(i) Mode of feeding 1mk*Trk*

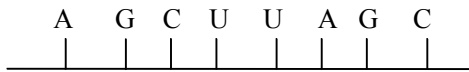
(ii) Reasons 2mks*Trk*

13. A group of Form 4 students set up an experiment. They used a small box in which a portion was covered with black paper and had moist soil. The open part had dry soil, termites were placed inside in open area of the box



- (i) Predict what happened to the termites after 30 minutes. 1mk *Trk*
- (ii) What form of response is this. 1mk *Trk*
- (iii) State two biological significance of the above response to termites in their natural habitat. 2mks *Trk*

14. Below is a nucleic acid strand.



- (a) Name the nucleic acid (1Mark) *Trk*
- (b) Give a reason (1 Mark) *Trk*
- (c) Write down the complimentary base pairing pattern in the nucleic acid that formed the nucleic acid above l(a). (1 Mark) *Trk*

15. State two homeostatic functions of blood clotting. (2 Marks) *Trk*

16. State three advantages of polyploidy to a farmer. (3 Marks) *Trk*

17. Name three types of skeleton. (3 Marks) *Trk*

18. State three characteristics of mutations. (3Marks) *Trk*

19. State three ways by which nitrogen is converted to nitrates. (3 Marks) *Trk*

20. Name the excretory product of marine fish, give reason for your answer. (2 Marks) *Trk*

21. State physical processes through which the body of a mammal gain from the environment. (2 Marks) *Trk*

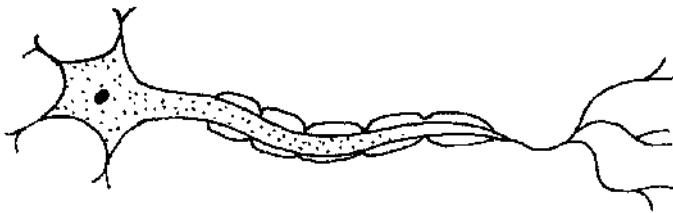
22. State three pieces of evidence that support the organic evolution. (3 Marks) *Trk*

23. John stayed with parents in Malindi for eight years. His red blood cell count was about 4.5 million per one millilitre of blood, the family migrated to Kisii town. After one year his Red blood cell count was approximately 6.2 million per One millilitre of blood.

Explain reason for rise in the number of red blood cells. (2 Marks) *Trk*

24. Name the five kingdoms in hierachical order from the most primitive to advanced kingdom. (2 Marks) *Trk*

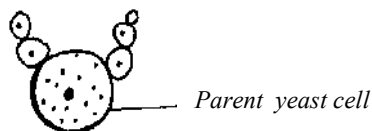
25. Examine the diagram below:



(i) Identify the cell (1 Mark) *Trk*

(ii) State its function (1mk) *Trk*

26. Below is a diagram representing yeast cells.



(a) State the kingdom to which the yeast belong. (1 mark) *Trk*

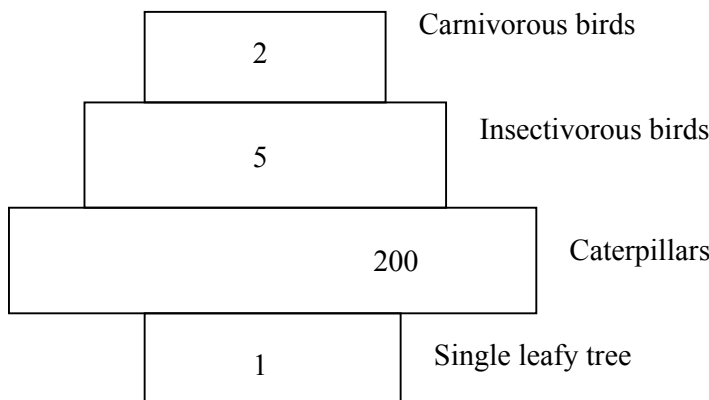
(b) Name the process illustrated by the cells above. (1Mark) *Trk*

27. State three factors that affect Basal Metabolic Rate (BMR) (3 Marks) *Trk*

28. State two biological significance of nastism.

(3 Marks) *Trk*

29. The diagram below represents an ecological pyramid in savannah ecosystem.



(a) Identify the ecological pyramid.

(1 Mark) *Trk*

(b) A single tree supports other organisms in the ecological pyramid: Why?(1 Mark)

(c) Describe the importance of using dry mass in ecological studies not wet mass.

(2 Marks) *Trk*

30. "Skeletal muscles contract and relax to bring about movement, this muscles are neurogenic"

What is meant by neurogenic

(1 Mark) *Trk*

31. State structures used for support in plants.

(3 Marks) *Trk*

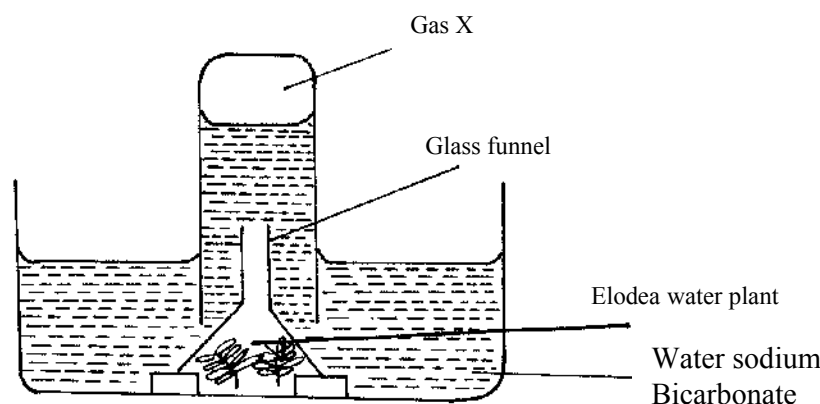
32. State the differences between nervous and hormonal communication.

(3 Marks) *Trk*

33. Apart from photosynthesis state two other uses of plant leaves.

(2 Marks) *Trk*

34. The set up below is used to demonstrate biochemical reaction



(a) Identify gas X

(b) Write a balanced chemical equation to show above process

(1mark) *Trk*

(c) In which cellular organelle does the process take place.

(1Mark) **Trk**

(d) What is the role of sodium bicarbonate in the experiment.

(1 Mark) **Trk**

END