1. Explain the following terms

   a) Taxonomy (1mrk)

   b) Species (1mrk)

2. State three features used in classifying arthropods into classes

3. a) Name the substance that accumulates in muscles when respiration occurs with insufficient oxygen (1mrk)

   b) Give the three end products of anaerobic respiration in plants. (3mrks)

4. a) State three characteristics of a wind pollinated flower. (3mrks)

   b) Explain why sexual reproduction is important to organisms. (1mrk)

5. State the functions of the following organelles.

   a).Lysosomes (1mrk)

   b).Golgi apparatus (1mrk)

6. What is the role of vascular bundles in plant nutrition?

7. Haemophilia is a genetic disorder which is transmitted through a recessive gene linked to the X chromosome using H to represent the normal gene and h for haemophilia, work out the genotypic ratio of the offspring of a marriage between a woman who is carrier for haemophilia gene and a normal man.

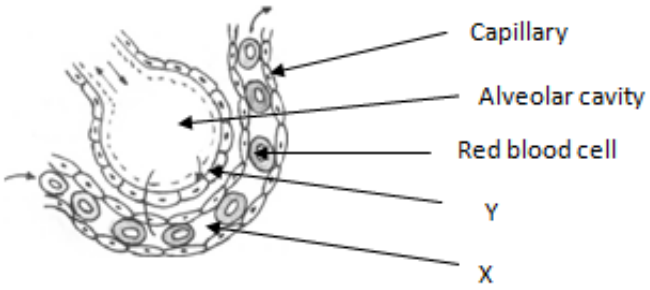
8. a) In what form does energy enter the earth's ecosystem? (1mrk)

b) What is the main source of energy in an ecosystem (1mrk)

c) In what form does energy transferred from one trophic level to another? (1mrk)

d) If only a small fraction of energy is transferred from one trophic level to another, what happens to the rest of the energy?

9. The diagram below represents gaseous exchange in the alveolus.



a).Indentify the gases labeled X and Y (2mrks)

b).Trace the path followed by gas Y from alveolar space until it reaches the red blood cells. (3mrks)

c).Name the part of the brain that controls breathing movement in humans. (1mrk)

10. The table below shows the energy use per day in kilojoules

Age(years)	Male	Female
2	5,500	5,500
5	7,000	7,000
8	8,800	8,000
11	10,000	9,200
14	12,500	10,500
18	14,200	9,600
25	12,100	8,800

a).From the table, explain why after age 8 males require more energy than females. (1mrk)

b). Other than sex and age, name three other factors that determine energy requirements in human beings (3mrks)

11. a) Define organic evolution. (1mrk)

b). Give the role played by variation in the process of evolution. (2mrks)

12. a) What are halophytes? (1mrk)

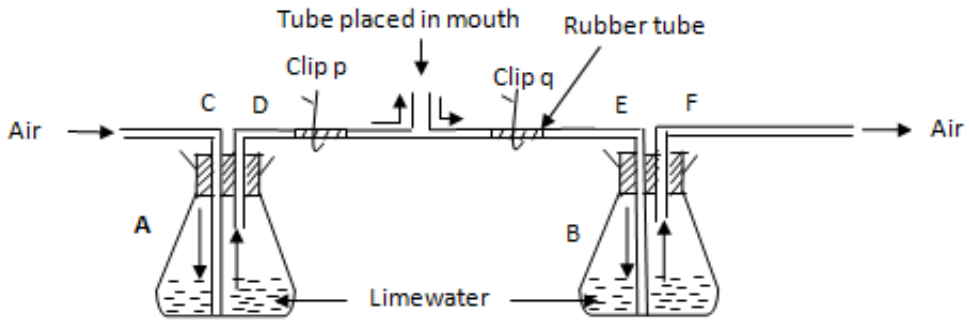
b) State three adaptations of halophytes to their habitats. (2mrks)

13. a) Name the causative agent of the following diseases in humans. (2mrks)
-Syphilis
-Herpes
b). State the functions of the following structures. (2mrks)

-Fallopian tube

-Amniotic fluid

14. An experiment was set up as shown below to compare the amount of carbon (iv) oxide in expired and inspired air.



a). State the purpose of the clip (2mrks)

i). P

ii). Q

b). Compare the observations in flask A and B after the experiment. Give reasons for your answer. (2mrks)

15. a). State the purpose of the clip (2mrks)

i). P

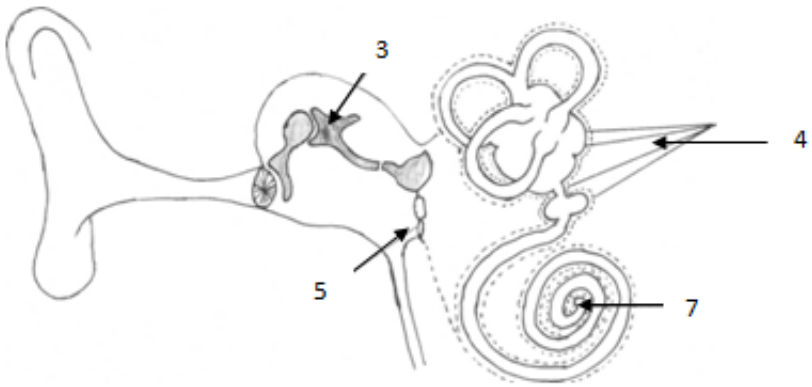
_____

ii). Q_____
_____

b). Compare the observations in flask A and B after the experiment. Give reasons for your answer. (2mrks) _____
_____
_____

16. Explain how water is gained from the soil by root hairs in plants.
_____
_____
_____

17. The diagram below shows the human ear.



a).Name the structures labeled 3, 4 (2mrks)
_____
_____
_____

b).State the function of the parts labeled 5 and 7 (2mrks)
_____
_____
_____

18. Give the survival value of the following tropic responses
a). Geotropism (1mrk)

_____
_____

b). Haptotropism (1mrk)

_____
_____

c). Chemotropism (1mrk)

_____
_____

19. Distinguish between single and double circulatory systems.
_____
_____

20. Name one disorder caused by a dominant gene.
_____
_____

21. Name the spore producing structures in pteridophytes.

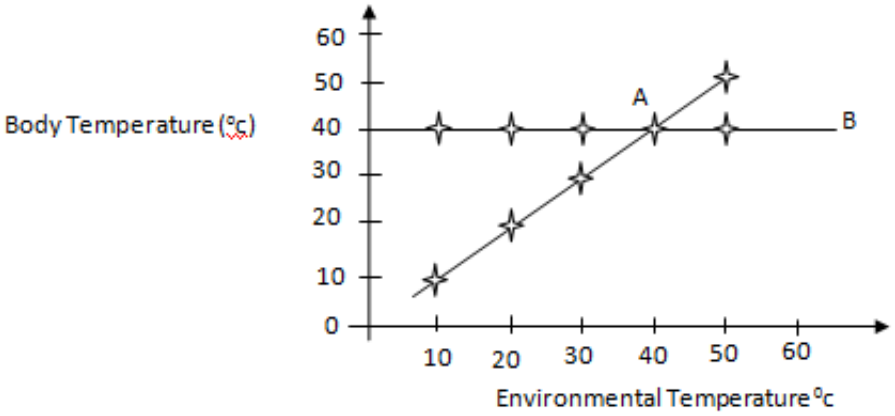
_____
_____

22. a). Define transpiration. (1mrk)

_____
_____
_____

b). State two environmental factors that decrease the rate of transpiration. (2mrk)

23. The graph below shows the relationship between environmental temperature and the body temperature in two different animals A and B.



a).State the relationship between the body temperature of animal A and external environmental temperature (1mrk)

b). Give the term used to describe;

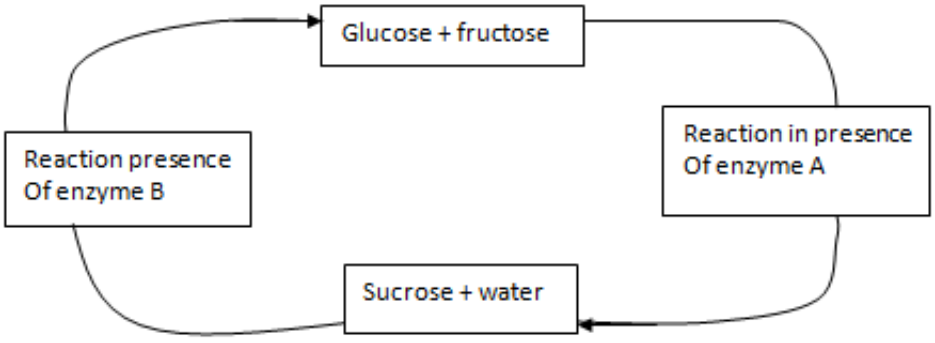
i). Animals of type A_____ (1mrk)

ii). Animals of type B_____ (1mrk)

24. Nitrogen in the atmosphere cannot be directly utilized by plants. State two ways by which this Nitrogen is made available for plant use

_____
_____
_____
_____
_____
_____

25. The diagram below shows chemical reaction I and II which are controlled by enzyme A and B.



Name the reaction I and enzyme B Reaction.....
.....

Enzyme B.....
.....

26. State two main functions of a microscope.

_____
_____
_____

27. in what form is carbon (IV) oxide transported in blood

_____
_____
_____