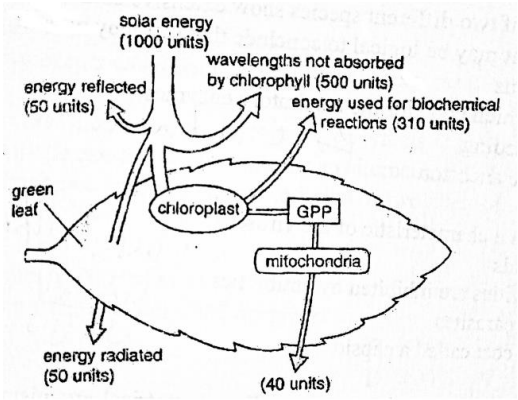
NAME: ……..... SIGNATURE: …….

S.5 BIOLOGY OCTOBER ASSESSMENT TEST

TIME: 120 MINUTES INSTRUCTIONS: Attempt all questions.

SECTION A

1. A plant tissue which is tubular, open ended, with lignified and thickened walls is
   A. Tracheid B. Xylem vessel C. Parenchyma D. Sieve tube
2. Which of the following cells has the ability of division?
   A. Osteogonic cells B. Osteoblasts C. Osteoclasts D. Osteocytes
3. Which one of the following is true about the mature metaxylem vessels?
   A. They are capable of stretching and growing
   B. They are living cells
   C. They are fully lignified and rigid
   D. They are formed before elongation is complete.
4. Which one of the following types of epithelia experiences the highest rate of wearing?
   A. Stratified B. Columnar C. Glandular D. Ciliated
5. Which one of the following types of cells is most abundant in plant structures?
   A. Meristematic cells C. Sclerenchyma cells
   B. Parenchyma cells D. Collenchyma cells
6. The following are true of epithelial tissue except…
   A. In a simple epithelium some of the cells touch the basement membrane
   B. In a compound epithelium only the lower layer of cells touch the basement membrane
   C. simple epithelium has one layer of cells
   D. compound epithelium has more than one layer of cells
7. Which one of the following is true about metaxylem?
   A. Its cells have extensively lignified cell walls.
   B. Its cells are capable of further expansion.
   C. The tissue is formed before completion of stem expansion.
   D. Its cells have wall lignified in spiral and ring form.
8. The biomass of consumers is always less than that of producers because,
   A. Producers have to support consumers
   B. Consumers have a low produce rate
   C. Energy is lost through body process of consumers
   D. Consumers are small in size
9. In estimating the population of Tilapia in a fish pond, 60 fish were captured, marked and released. After 2 days, 50 were captured and out of which 10 were marked. The population of Tilapia in the fish pond was
   A. 300 B. 400 C. 200 D. 100
10. A good pesticide is one which
    A. Kills a wide range of organisms
    B. Persist for a long time after its application
    C. Kills pest at different trophic levels
    D. Easily transforms to non – toxic forms.
11. Figure 1 shows the gain and loss of energy between a leaf and the atmosphere



The net primary productivity is

A. 50 units B. 90 units C. 140 units D. 450 units

12. Three counts of 103, 46 and 20 of a plant species were made using a quadrat of $25cm^3$. The density of the plant per m^2 is

A. 169 B. 56.3 C. 225 D. 676

13. Marine cartilaginous fish solves its osmoregulatory problems by

A. Swallowing sea water and having few glomeruli
B. Actively extruding salts
C. Retaining urea to increase the osmotic potential of the body fluids
D. Excreting trimethylamine oxide

14. Which one of the following is correct about ectotherms?

A. Have cold blood which is warmed by the surroundings
B. Regulate body temperature mainly by metabolic reactions
C. Much of the heat in their bodies is gained from the surroundings.
D. Lack means to regulate body temperature.

15. Which one of the following is away of minimizing water loss in dessert animal?

A. Drinking a lot of water
B. feeding on succulent vegetation
C. Possession of few glomeruli
D. Having a short loop of Henle.

16. The latest heat of vaporization of sweat is 3.15KJ dm^{-3}. What is the percentage of energy lost by sweating from a manual worker who loses $2dm^3$ per day of sweat and has a daily energy intake of 40,000KJ?

A. 6.30 B. 7.88 C. 8.25 D. 15.75

17. Heat loss is most efficiently reduced in body extremities of endotherms by having

A. Veins and arteries parallel and close to each other
B. Thick fur
C. Thick subcutaneous layer
D. Few sweat glands

18. An organism was found to possess conspicuous flagella, chloroplasts and protein coat. The phylum to which the organism belongs is the.

A. Protozoa B. Chlorophyta. C. Ascomycota D. Bryophyta.

19. Which one of the following is a characteristic of members of the monera kingdom?

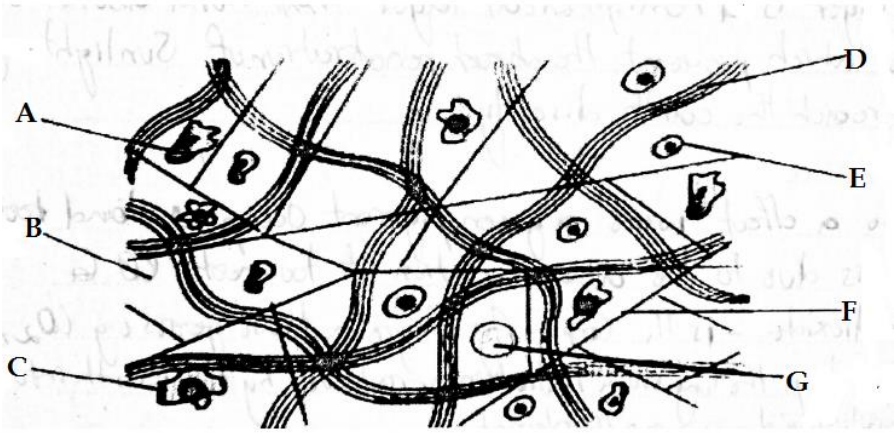
A. Possession of a true nucleus. C. Possession of flagella.
B. Being single celled. D. Being heterotrophic.

20. In which of the following organisms is the gametophyte a dominant generation?
A. Ferns B. Mosses C. Conifers D. Flowering plants

21. In sponges, the different types of cells are independent of each other in function because?
A. The different cells show division of labour.
B. Collar cells maintain the flow of water.
C. Sponges are made up of collar flagellates
D. The cells are not coordinated.

SECTION B

1. The diagram below represents an animal tissue.



(a) (i). State the specific type of this tissue and give two places where it works. ***(02 ½ marks)***

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(ii). Label the parts A to G and give the functions of each part. ***(06 marks)***

PART	***LABEL***	***FUNCTIONS.***
A		
B		
C		
D		
E		
F		
G		

(b) Briefly explain how the following types of epithelial tissues are suited to perform their functions.

(i) Squamous epithelium ***(02 marks)***

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(ii) Cuboidal Epithelium ***(02 marks)***

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(iii) Columnar epithelium ***(02 marks)***

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2. (a)What is meant by alternation of generations ***(03 marks)***

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(b) Ferns and mosses show alternation of generations. State the dominant state in each case

(i) Ferns ……***(01mark)***

(ii) Mosses ……***(01mark)***

(c) Give the importance of alternation of generations in the life cycle of an organism. ***(02 marks)***

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(d) Outline the limitations that mosses face in growing in terrestrial habitats. ***(04marks)***

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3. Figure 5 below shows the immigration and extinction of species on an island.

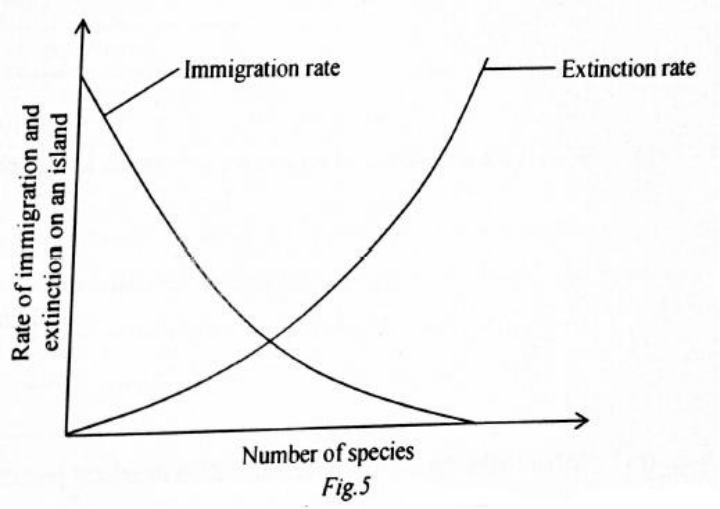

Fig.5

(a). Explain the relationship between the measurable variables on a virgin island. ***(05 marks)***

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(b). From the graph, suggest four factors that could be determining the number of species on the island? ***(02 marks)***

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(c). State three factors that may affect the immigration of new species to the island. ***(03 marks)***

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4. Figure 4 shows the variation of metabolic rate with environmental temperature in a mammal.

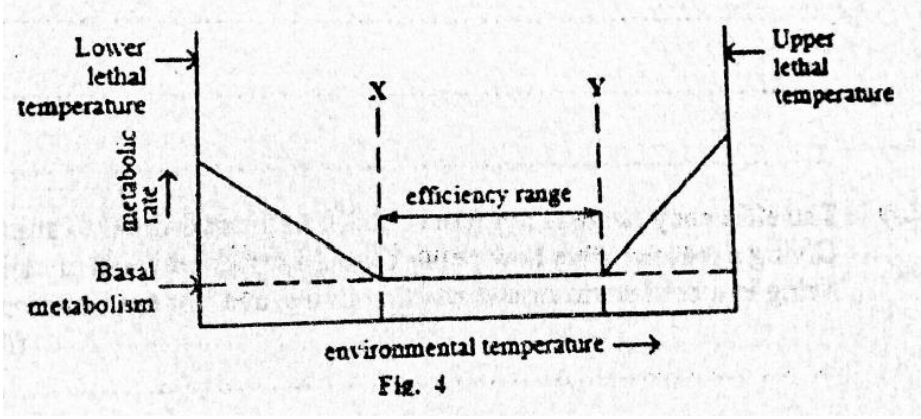

Fig. 4

(a) What do the temperature X and Y represent? (01 mark)

(i) X ……

(ii) Y ……

(b) What does the efficiency range mean? ***(02 marks)***

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(c) Explain the variation of metabolic rate with environmental temperature outside the efficiency range. ***(05 marks)***

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(d) The efficiency range is not fixed but differs from animal to animal. Giving a reason, state how point X would differ between an animal living in a cold environment and that living in a hot environment. ***(02 marks)***

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SECTION C

1. (a)What is meant by the term Ultra-filtration? ***(04 marks)***

   (b) Describe how intercellular fluid is formed ***(16 marks)***

END!!!

"Don´t ask what the world needs. Ask what makes you come alive, and go do it."