S.2 BIOLOGY
TIME: 1HR:45MIN

Instructions

- ***Attempt all questions in section A and B***
- ***ANSWERS TO SECTION A***

1	7	13	19	25
2	8	14	20	26
3	9	15	21	27
4	10	16	22	28
5	11	17	23	29
6	12	18	24	30

SECTION A (30 MARKS)

Answer ALL the questions this section by choosing the best alternative answer write the answer of your choice in the answer sheet provided.

1. Which of the following mineral nutrients are important in the formation of chlorophyll?
   a) Potassium and sulphur
   b) Nitrogen and magnesium
   c) Calcium and phosphorus
   d) Zinc and copper
2. Which type of reproduction is used by spirogyra during a dry season?
   a) Budding
   b) Fragmentation
   c) Sporulation
   d) Conjugation
3. Which of the following sugars is not reducing?
   a) Maltose
   b) Fructose
   c) Galactose
   d) Sucrose
4. Which f the following methods of controlling malaria would have least damage to the environment?
   a) Drainage of swamps
   b) Spraying oil over stagnant water
   c) Spraying swamps and ponds with insecticide.
   d) Introducing fish into the swamps and pond

5. Animal x has the following dentition

i 0	c 0	PM 3	M 3
3	1	3	3

What type of feeder is animal x

a. Omnivore
b. Carnivore
c. Herbivore
d. Filter feeder

6. Which of the following organism belong to a different kingdom?
   a) Bread mould
   b) Moss
   c) Fern
   d) Mango tree
7. Which of the following statements on absorption of food is biologically correct
   a. During the process of absorption, all food nutrients diffuse into blood capillaries
   b. The first organ to which all absorbed food products are passed to is the heart
   c. The absorbed products pass into the lacteals after digestion
   d. The liver is the first organ through which most absorbed food products pass.
8. A guard cell differ from other epidermal cells in that it.
   a) Has a cell vacuole
   b) Has chloroplasts
   c) Surrounds stomata
   d) Has holes
9. The parts of an light microscope which give the total magnification of the object being viewed is the;
   a) Mirror and eye piece
   b) Diaphragm and objective lens
   c) Objective lens and eye piece
   d) Objective lens only
10. Which one of the following levels of classification contains organisms having the least degree of similarities?
    a) Kingdom
    b) Variety
    c) Species
    d) Family
11. The following are types of roots EXCEPT;
    a) Buttress
    b) Decussate
    c) Prop
    d) Fibrous
12. The following are seed parts;

(i) Testa (ii) plumule (iii) radicle (iv) micropyle (v) cotyledon

Which of the parts form the embryo?

a) (i) and (iv)
b) (v) Only

c) (iv) and (v)

d) (iii) and (v)

13. The fore wings of an insect are located on the?

a) Prothorax

b) Mesothorax

c) Metathorax

d) Thorax

14. After a period of study, a student observed that two organisms Q and P lived together in a loose relationship, P surviving on Q, however Q was not affected in any way by the presence or absence of P. this type of nutrition relationship is termed;

a) Symbiosis

b) Parasitism

c) Commensalisms

d) Autotrophism

15. Which of the following is NOT TRUE about a Ruminant like a cow?

a) It has four stomachs

b) It chews the cud

c) It has a stomach made of four chambers.

d) It has micro organisms, which secrete enzymes that digest cellulose.

16. Which part of the bulb stores food?

a) Underground roots

b) Underground stem

c) Leaves

d) Aerial stem

17. What will happen to an enzyme if the temperature of its medium is raised beyond the optimum level? The enzyme will be;

a) Killed

b) Inactivated

c) Denatured

d) Activated

18. Which one of the following is a function of the diastema in herbivores

a. Assists the teeth in chewing the food

b. Performs the role of canines and molars

c. Separates the food being chewed from the one being cut.

d. Provide free passage of food to the stomach

19. Lacteals in the villi of small intestines……

a. Absorbs soluble waste products

b. Secrete fat digesting enzymes

c. Transports absorbed fatty acids and glycerol

d. Store fats

20. Poor vision in dim light or at night is due to the deficiency of vitamin…….

a. B
b. A
c. D
d. C

21. water is important in all living organisms because it
    a. is a universal solvent
    b. acts as a solute
    c. is produced during photosynthesis
    d. regulates body temperature

22. Which of the following are NOT characteristic stem features found in rhizomes
    a. Scale leaves
    b. Buds
    c. Tap roots
    d. Adventitious roots

23. The following is a dental formula of a certain animal.

$1\ \frac{2}{2},\ C\ \frac{1}{1},\ PM\ \frac{2}{2},\ M\ \frac{3}{3}.$

Which of the following NOT true about the animal?
    a. It feeds on vegetation alone
    b. It is man
    c. It feeds on both flesh and vegetation
    d. Its dentition is described as heterodont.

24. Which one of these insects does not lay eggs in its lifecycle?
    a) Bee
    b) Grasshopper
    c) Tsetse fly
    d) Housefly

25. Which of the following parts of a plant cell provides shape and rigidity?
    a) Protoplasm
    b) Nucleus
    c) Cell wall
    d) Cell membrane

26. Nutrition means
    a. Building up sugars
    b. Intake of food to build up living matter
    c. Eating food
    d. Absorbing vitamins

27. What is the purpose of boiling the leaf in methylated spirit before flooding it with iodine when testing for starch in the leaf?
    a. To kill the leaf cells
    b. To soften the leaf for iodine to penetrate it
    c. To remove the chlorophyll
    d. To destroy any fungus or bacteria

28. Which one of the following is likely to happen in a man whose pancreas is surgically removed?

a. Digestion of fat will cease
b. The abdomen will swell
c. Sugar will appear in urine
d. The liver will store more glycogen

29. What gas is likely to be evolved from a submerged aquatic plant in bright sunlight?
    a. Carbon dioxide
    b. Oxygen
    c. Hydrogen
    d. Nitrogen

SECTION B

31. Figure below shows the experimental set-up determining rate of photosynthesis in an aquatic plant. The numbers of bubbles given off were counted during varying distance of light (50cm, 60cm, 100cm, 140cm, and 170cm). The results obtained were recorded as shown in table

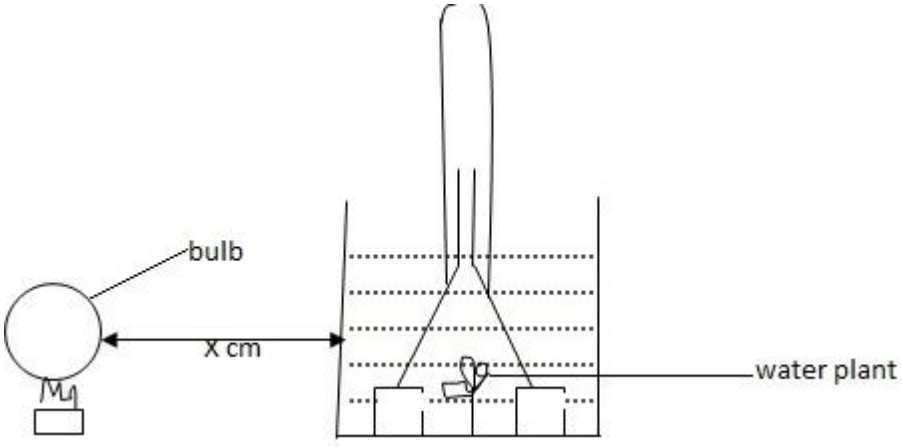


Table: the number of bubbles counted per minute under different distances of light exposure

Session	Distance(cm)	Number of bubbles
1	50	26
2	60	20
3	100	10
4	140	5
5	170	2

(a) i. State how the variation of distance affected the number of gas bubbles given out (2 marks)

……

……

……

ii) Using the results from the table above, explain the effect of light intensity on rate of photosynthesis (2 marks)

……

……

……

……;

(b) (i) Name the gas that was given off by the plant (1 mark)

……

(ii) How is the gas above tested in the laboratory (2 marks?)

……

……

……

(c) In which biological process is this gas being produced? (1 mark)

……

……..

(d) What conclusion can be drawn from the results obtained in the experiment (2 marks)

……

……

……

(e) If the funnel was opaque, suggest the expected results. Give a reason for your answer (2 marks)

……

……

…….

(f) Why was sodium hydrogen carbonate added to the water in trough (1 mark)

……

……

……..

(g) List down 4 factors that affect the rate of photosynthesis (2 minutes)

……

……

……

……

……

32. a) Name the enzymes responsible for breakdown of **a** meal of posho and fried beans at each of the following parts of alimentary canal and food substrates and their products. (10 marks)

Part	**Secretion (juice)**	**Enzyme**	**Food substrate**	**Product**
Mouth				
Stomach				
Ileum		i)…… ii)……..l iii)…… iv)…….……	…… …… …… ……..	…… …… …… ……

b) State four ways in which the ileum is adapted to its functions of absorption (5marks)

……

……

……

……

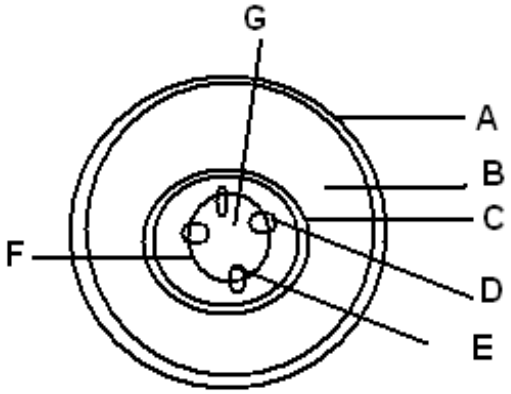
……

……

……..

…….

33. . The figure below shows a plant part.



a) Name the parts labeled A-G (3 marks)

A……..
B……..
C…….
D…….
E……..
F…….
G…….

b) What are the functions of parts (3 marks)

D……
……
E……
……
F……
……

c) State the part of plants from which the figure was extracted. (1 mark)

…….
……

d) State 4 functions of stems to a plant (4 marks)

.....

.....

.....

.....

.....

Good luck