ST. BARNABAS COLLEGE MIGADDE
B.O.T II EXAMS 2019

NAME: ……STREAM: …….SIGNATURE …….

553/1
Biology S.4
TIME: 2 HOURS 15 MINUTES

INSTRUCTIONS
Attempt ALL questions in sections A, B and C in the spaces provided.

SECTION A

2. In man, the substance which promote digestion of lipids are contained in
A. Gastric juice B. Intestinal juice
C. Pancreatic juice D. Bile

3. In mammals, the blood vessel connected to the left auricle is the
A. pulmonary artery B. Superior vena cava
C. Pulmonary vein D. Aortic arch.

4. In the scientific name of the dog, canis familiaris, the underlined latin words stand for
A. family and species B. order and class
C. genus and species D. phylum and kingdom

5. A mushroom is an example of a (n)
A. saprophyte B. independent plant
C. symbioant D. parasite

6. Which of the following organisms possess two nuclei
A. Amoeba B. Hydra C. Paramecium D. Trypanosome

7. Anaemia may be prevented by including in the diet adequate amounts of
A. Calcium B. Vitamin C. Vitamin K D. Iron

8. Which of the following gives the largest amount of energy when oxidized in the body is
A. Fats B. Proteins C. Carbohydrates D. Vitamins

9. An endsperm is formed in plants when the second male nucleus fuses with the
A. egg nucleus B. polar nuclei C. antipodal nuclei D. embryo sac

10. Which of the following parts of a microscope magnify the object?
A. Eye piece and mirror B. Objective lens and Mirror
C. Eye piece and fine adjustment knob D. Eye piece and Objective lens.

11. Which one of the following is a likely effect of a decrease in the number of platelets in the blood?
A. The blood may not be able to carry enough oxygen
B. There may be prolonged bleeding in case of an injury
C. The body may not be able to fight disease
D. The body may not be able to distribute heat efficiently.

12. Four strips A, B, C, D were cut from an Irish potato containing 28.5% sugar. The strips were dipped into sugar solutions of different concentrations as given below

Which strip will be longest after 4 hours?

Strip	**Solution concentration**
A	15%
B	28.5%
C.	35%
D	48%

13. The oxygen given off during photosynthesis originates from:
A. chlorophyll B. water C. glucose D. carbondioxide

14. In which of the following parts of a flower do gametes develop.
A. Anthers and Ovary B. Stigma and style
C. Receptance and Ovary D. Stamen and filament

15. Why is a shoot being prepared for transpiration experiment normally cut under water? To
A. avoid water loss which may cause wilting
B. prevent loss of sap
C. prevent air from entering the xylem vessels
D. remove damaged tissues.

16. Which one of the following cells could have their functions adversely affected by the AIDS virus?
A. Erythrocytes B. Platelets C. Leucocytes D. Nerve cells

17. The forces which mostly help water to more up a tall plant are
A. Osmosis and diffusion B. Capillarity and transpiration
C. Osmosis only D. Capillarity and osmosis

18. Which of the following blood vessels transport blood most rich in nutrients?

A. Hepatic portal vein B. Hepatic vein
C. Renal vein D. Mesenteric artery

19. Which of the following is an example of a berry?
A. Avocado B. Passion C. Groundnut D. Cotton

20. Which f the following organisms carries out intracellular digestion?
A. Fungi B. Algae C. Amoeba D. Hook worm

21. The following are factors that affect the rate of transpiration
(i) High temperature
(ii) High relative humidity
iii) Low atmospheric pressure
(iv) Low light intensity

Which two of these would favour increased transpiration?
A. (i) and (ii) B. (i) and (iii) C. (ii) and (iv) D. (iii) and (iv)

22. A student obtained the following results when he tried to identify a substance 'X' by chemical tests.

Test	**Observation**
'X' was heated with Benedicts solution	Solution remains blue
X + dilute HCl + NaOH(aq) + Benedicts solution then heat	an orange precipitate

From the results the student identified 'X' as
A. starch B. maltose C. glucose D. sucrose

23. To which order do butterflies belong?
A. Lepidoptera B. Diptera C. Orthoptera D. hymenoptera

24. In an experiment, the relation between a control group and the experimental group is that both …….
A. should be different in size
B. should be identical in all aspects except one
C. should not be similar in any aspect
D. should resemble each other in at least three aspects.

25. Rolled leaves with sunken stomata, thick cuticles and hairly lower epidermis is typical of a;
A. xerophytes B. mesophyte C. halophyte D. hydrophyte

26. A plasmolysed plant cell that has been transffered into water and left for 1 ½ hours;
A. it will lose water to the surroundings and decrease in size
B. it will not experience any change in size
C. it will absorb water from the surroundings and increase in volume.
D. the vacuole will shrink and disappear altogether

27. The least effective environmental factor in soil formation is
A. wind B. heat C. water D. light

28. The ileum is an effective organ for absorption of digested foods because it ……
A. has a good nerve supply B. is a short length
C. has intestinal folds and villi D. has muscular walls for peristalsis

29. Which of the following describes fungus growing on leaves of a living potato plant?
A. saprophytism B. parasitism C. predation D. symbiosis

30. What gas is likely to be evolved from a submerged aquatic plant placed in bright sunlight?
A. Hydrogen B. Nitrogen C. Carbondioxide D. Oxygen

SECTION A ANSWER SHEET

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

Section B

31. The results in the table below were obtained when a small piece of living tissue of Irish potato is dropped into Hydrogen peroxide. Bubbles of a gas are observed de to the enzyme found in the Irish potato.

Temperature (^oC)	20	30	39	53	62	68
Volume of gas evolved (cm^3)	8	23	35	33	16	3

(a) Plot a graph of volume of gas evolved against temperature (5 marks)

(b)(i) Estimate the optimum temperature for enzyme activity (1 mark)

…….

(ii) Explain the changes observed in your graph (3 marks)

…….

…….

…….

…….

(c) Name;
(i) the gas evolved
……(1 mark)

(ii) the enzyme in Irish potato (1 mark)

…….

(iii) the other product in the above experiment (1 mark)

…….

(d)(i) State two effects of the enzyme similar to those of Manganese (IV) oxide which acts as a catalyst on Hydrogen peroxide (2 marks)

…….

(ii) How are the effects of the enzyme different from those of Manganese(IV) oxide? (2 marks)

Effect of enzyme	**Effect of Manganese (IV) oxide**

32. The diagram below shows a dog's skull. Study it carefully and answer questins below:

(a) Name the parts labeled A and B. (2 marks)

A …….

B …….

(b) For what purposes are the parts you have named in (a) above? (2 marks)

A …….

B …….

(c)(i) What is meant by Dental formula? (2 marks)

…….

…….

…….

(ii) Write down the dental formula of a dog (1 mark)

…….

…….

(iii) What is the total number of teeth in this skull? (1 mark)

……

(d) Suggest the diet of an animal with such a skull (1 mark)

……

……

33. (a) Define the terms
(i) Diffusion (2 marks)

……

……

(ii) Active transport (2 marks)

……

……

(b) Give one example where diffusion occurs in plants and animals (2 marks)

……

Plant

……

Animals
(c) Give one example where active transport occurs in plants and animals
(2 marks)

Plants

……

Animals

……

(d) State 3 factors that affect the rate of diffusion (3 marks)

……

……

…….

…….

…….

34. A student was given a sample of soil and was asked to mix it with water in a beaker. More water was added to make a solution and then allowed to settle.
Diagramatically show the arrangement of the soil particles and water (4 marks)

…….

…….

…….

…….

SECTION C
Answer TWO questions

35. With the help of a well labeled diagram briefly explain how a plant obtains water required in its leaves (15 marks)

36. (a) What is transpiration? (2 marks)

(b) Describe an experiment to show that transpiration occurs in plants (10 marks)

(c) What are the advantages of transpiration in a plant? (3 marks)