NAMUNGOONA SALAF SECONDARY SCHOOL

END OF YEAR EXAMINATION, 2022

DEPARTMENT OF BIOLOGY

SENIOR THREE

BIOLOGY P1

(THEORY)

2hour 30minutes.

Name…… Stream……..

Instructions

- This paper consists of three sections **A**, **B** and **C**. All questions in section A and B are **compulsory**
- For section C attempt only **two** questions on the answer sheet provided
- For section A circle the correct alternative

Section A (30marks)

1. Which of the following process needs energy?

A. Osmosis
C. Plasmolysis
B. Diffusion
D. Active transport

2. The diagram in figure1 is of transverse section of a plant part

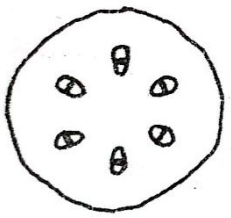

Fig.1

A. Monocotyledonous stem
B. Monocotyledonous root
C. Dicotyledonous root
D. Dicotyledonous stem

3. The dry fruit which splits open along both sutures is

A. Follicle
C. Achene
B. Capsule
D. Legume

4. Which one of the following organisms is not a heterotroph?

A. Mushroom
B. Alga

C. Tick
D. Grass hopper

5. What do the rhizobium bacteria gain in their association with leguminous plants?
A. Air
B. Heat
C. Shelter
D. Nitrates

6. Which one of the following structures is not essential in the life of an adult frog?
A. Lungs
B. Gills
C. Moist skin
D. Long muscular limbs

7. In an experiment to determine the percentage of air in the soil, the following results were obtained
Volume of soil = 40cm3
Volume of water =40cm3
Volume of soil + soil after stirring =75cm3.
The percentage of air in the soil is
A. 6.7
B. 5.0
C. 12.5
D. 53.3

8. The agent of dispersal of a fruit with a fleshy mesocarp and tough endocarp is
A. Wind
B. Water
C. Animals
D. Self

9. Which of the following pairs of blood constituents play a role in blood clotting?
A. Platelets and hormones
B. Hormones and plasma
C. Platelets and fibrinogen
D. Fibrinogen and leucocytes

10. Which of the following occurs when a cylinder of fresh potato tuber is placed in a strong solution of sucrose and left for some time? The cylinder
A. Absorbs water
B. Absorbs the solution
C. Becomes hard
D. Becomes soft

11. The importance of lateral line in a fish is to

A. Provide buoyancy
B. Provide direction
C. Stabilise the fish
D. Detecting vibrations

12. Which of the following occurs in a mammal which is in a cold environment?
A. More blood flows to the skin

B. Metabolic rate decreases
C. Vasoconstriction of the skin capillaries
D. Erector pili muscle relax

13. Which one of the following pairs of characteristics is common to both ***insecta*** and ***arachinida***?
A. Jointed limbs and segmented body
B. Three body parts and jointed limbs
C. Three body parts and a pair of wings
D. A pair of antenna and segmented bodies

14. Which of the following parts is modified for food storage in a sweet potato?
A. Roots
B. Stem
C. Leaves
D. Buds

15. Which of the following organisms is involved in glucose regulation?
A. Salivary glands
B. Stomach
C. Pancreas
D. Hypothalamus

16. Which of the following activities in human occur is not a reflex action?
A. Sleeping
B. Blinking
C. Coughing
D. Walking

17. Which of the following structures adapt vertebrates to survive on land?
A. Legs
B. Wings
C. Lungs
D. Scales

18. Which one of the following is a monosaccharide?
A. Maltose
B. Sucrose
C. Galactose
D. Lactose

19. Which of the following occurs during inhalation in man?
A. Ribs move downwards
B. Internal intercostal muscles relax
C. Diaphragm muscle relax
D. External intercostal muscle contract

20. Termites are able to eat wood because
A. They produce cellulose enzyme
B. They possess strong mandibles
C. They ingest only small pieces
D. Microscopic fungi live in their guts

21. Which one of the following is a role of bile in digestion?

A. Providing a suitable medium for the action of enzymes in the duodenum
B. Activating enzymes
C. Catalysing the action of enzymes
D. Breaking down proteins

22. Which one of the following characteristics of a plant leaf is important in ensuring maximum absorption of light energy?

A. Numerous stomata on the lower epidermis
B. Well-spaced spongy mesophyll cells
C. Compact palisade cells
D. Waxy cuticle on upper epidermis

23. What function is performed by only modified leaf?

A. Food manufacture
B. Gaseous exchange
C. Transpiration
D. Vegetative propagation

24. The aim of the experimental setup to demonstrate that

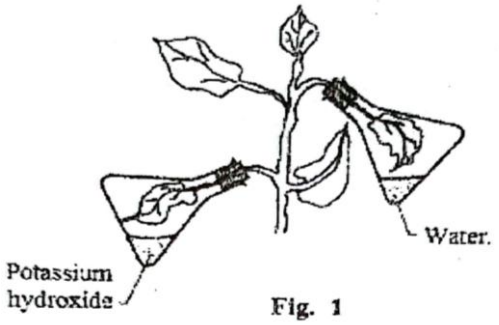

Fig. 1

A. Oxygen is produced during photosynthesis
B. Chlorophyll is necessary for photosynthesis
C. Carbon dioxide is necessary for photosynthesis
D. Light is necessary for photosynthesis

25. The organism with the great amount of energy is

A. Cow
B. Grass
C. Hen
D. Man

26. The following is not a structural adaptation to reduce water loss.

A. Hairy lamina
B. Thin lamina
C. Waxy cuticle
D. Sunken stomata

27. To which one of the following does humus contribute least in the soil?

A. Improving aeration

B. Reducing soil erosion
C. Improving water retention
D. Increased soil fertility

28. Which one of the following diseases can be transmitted by both the housefly and cockroach?
A. Cholera and dysentery
B. Dengue fever and yellow fever
C. Trypanasomiasis
D. Cholera and yellow fever

29. The interaction of plants, animals and non-living things in their environment forms.
A. Population
B. Ecosystem
C. Community
D. Niche

30. Which one of the following is true about a bread mould?
A. Feeds parasitically on flesh
B. Exhibits holozoic nutrition
C. Ingest food by engulfing
D. Digests food outside its body

SECTION B (40 MARKS)

Answer **all** questions in this section

Answers **must** be written in the space provided

31. The data below shows the average number of ticks per animal in a certain farm before and after spraying with a certain chemical. The spraying was done once every month. The data was tabulated as shown below

Time (months)	0	2	4	6	8	10	12	14
Average number of ticks	200	90	40	20	16	25	45	90

a) Plot a graph to represent the above data (06marks)

b) Explain for the average number of ticks between
i) 0 and 8 months (03marks)

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ii) 10 and 14 months (03marks)

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c) From the graph, determine the average number of ticks after spraying the animal for **5months**. (01mark)

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d) If the animals were allowed to graze in an open field consisting of small birds, construct a food chain and state the **trophic level** of the tick. (04marks)

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e) State the challenges caused by the ticks onto the animal. (03marks)

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32. (a) Why is it important for the body to maintain the glucose levels constant? (02marks)

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(b) Explain the role of the pancreas in

i) Glucose regulation.

(03marks)

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ii). Digestion.

(03marks)

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c) Name any other two organs in the human body involved in homeostasis

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33. (a) Define the term osmosis. (02marks)

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(b) The figure 3 below was used to demonstrate the process of osmosis. Study it and answer questions that follow

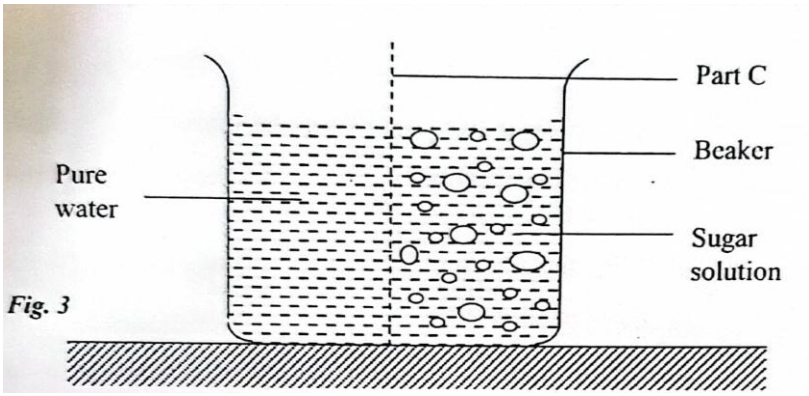

Fig. 3

i) Part C enabled the process of osmosis to take place. Give the probable name of the part labelled C found in an animal. (02marks)

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ii) If the setup was left to stand for 3hours, explain what would be observed. (03marks)

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c) Name the organ within the mammalian body where you would expect the highest rate of osmosis to take place.
(01mark)

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d) How is osmosis important to plants.
(03marks)

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SECTION C (30MARKS)

*Answer any **two** questions from this section*

34. (ai) What is meant by the term pollution
(02marks)
(ii) Outline any four air pollutants
(04marks)
(b) Describe the different ways of controlling water pollution
(09marks)

35. (a) Describe the movement of blood from the alimentary canal to the lungs in a mammal.
(05marks)
(b) How are veins and arteries structurally different.
(04marks)
(c) How is the circulation of blood in the body important.
(06marks)

36. (a) Explain how photosynthesis is a value to man. *(03marks)*
(b) Describe six adaptations of a leaf of a green plant for photosynthesis . *(06marks)*
(c) State 6 ways in which the process of photosynthesis differs from respiration. *(06marks)*

37. (a) Describe how soil can be conserved *(10marks)*
(b) Explain the roles of living organisms in the soil *(05marks)*