



Dr. Blosa Science

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SENIOR FOUR

553/1

BIOLOGY

PAPER 1

EXAM 9

FOR CONSULTATION CALL 0776802709

2¹/₂ HOURS

Instructions

1. Answer all questions in section **A** and **B**, plus two questions in section **C**.
2. The answers for section **A** should be written in the table below. Your work will not be marked unless the answers are written in the table.
3. Answers to section **B** should be written in the spaces provided.
4. Answers for section **C** should be written in the separate answer sheets provided.

Question	Marks
A	
31	
32	
33	
34	

SECTION A

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

SECTION A.

1. Which of these diseases is caused by hormonal deficiency?
 - A. rickets
 - B. diabetes
 - C. scurvy
 - D. poliomyelitis
2. Which one of the following plant food storage organs contains most food substances?
 - A. stem tubers
 - B. root tubers
 - C. fruits
 - D. seed
3. A person with blood group O is said to be a universal donor because
 - A. lacks antibodies in the serum
 - B. has both the antigens and antibodies in his blood.
 - C. has only antigen a in his red blood cell.
 - D. lacks antigen in his red blood cells.
4. When a semi permeable membrane is placed between a weak and a strong aqueous solutions, the molecules of water move across it, until equilibrium is established. Which one of these statements below illustrates this situation?
 - A. the contents of human small intestines and neighboring blood capillaries
 - B. entry of water from soil to root hairs of a plant.
 - C. the removal of excess water from the kidney.
 - D. the collection of sweat from blood vessels to the skin surface.
5. Which one of the following is a function of thyroxin?
 - A. controls water re-absorption in the body.
 - B. controls basic metabolic rate in vertebrates
 - C. regulates activities of other endocrine glands.
 - D. controls the functioning of the thyroid glands.
6. A medium of Low pH stops the action of
 - A. pepsin
 - B. lipase
 - C. ptyalin
 - D. maltase
7. A vertebra has a short spine, a neural canal and a vertebral arterial canal. From this description, the vertebra belongs to
 - A. cervical region
 - B. thoracic region
 - C. lumbar region
 - D. caudal region
8. Which one of the following is common to respiration and photosynthesis.
 - A. Energy is released
 - B. Both occur in all living cells.
 - C. Food oxidation is common to both.

D. Oxygen, carbon dioxide and water are involved.

9. Which one of the following organisms does not use blood to carry oxygen within its body?

- A. fish
- B. bee
- C. snake
- D. an earth worm

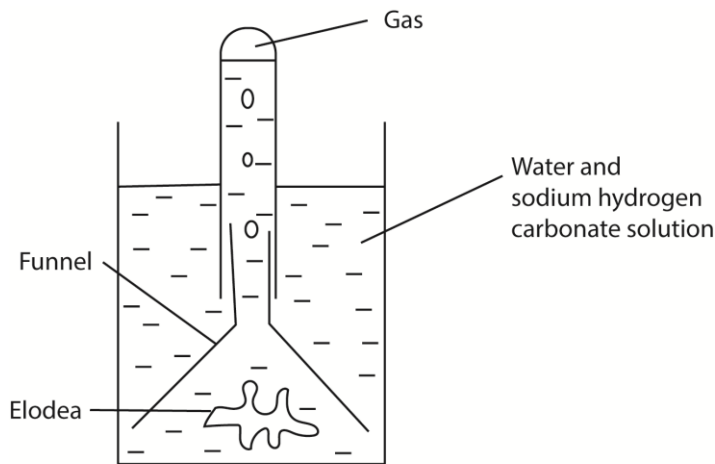
10. The path followed by impulses during a reflex action are:
muscle

- i. muscle
- ii. sensory neurone
- iii. sense organ.
- iv. association neurone
- v. motor neurone

The correct order followed by impulses is

- A. (iii), (iv), (ii), (v), (i)
- B. (i), (ii), (iv), (ii), (iii)
- C. (iii), (ii), (iv), (v), (i)
- D. (ii), (iii), (iv), (v), (i)

11. Figure 1 shows the diagram of the apparatus that can be used to collect the gas evolved in photosynthesis.



Which one of the following would produce the largest volume of the gas in a given time?

- A. increasing light intensity
- B. increasing the temperature
- C. increasing the concentration of sodium hydrogen carbonate.
- D. increasing both light intensity and the concentration of sodium hydrogen carbonate.

12. Which one of the following glands secretes growth hormone in mammals?

- A. pancreas
- B. pituitary gland
- C. adrenal gland
- D. gonads

13. Which one of the following is not a difference between plant cell and animal cell?

- A. animal cell contains small vacuoles whereas plant cells usually have one or two large vacuoles.
- B. animal cells have cell membrane only whereas plant cell have cell walls only.
- C. animal cells are usually flaccid whereas plant cell are usually turgid.
- D. animal cells never contain chlorophyll whereas plant cells do.

14. Which one of the following types of bacteria causes the conversion of ammonia into nitrates?

- A. nitrifying bacteria
- B. denitrifying
- C. putrefying bacteria
- D. Nitrogen fixing bacteria

15. Which one of the following types of processes is not linked with transpiration.

- A. Absorption of water by roots
- B. transportation of sugars
- C. cooling of leaves
- D. provision of mechanical support.

16. Which one of the following is not an example of excretion?

- A. a man sweating
- B. a tree dropping its leaves
- C. a dog salivating
- D. a goat exhaling

17. Secondary thickening in flowering plants is brought about by expansion of the

- A. phloem cells.
- B. cambium cells.
- C. xylem cells
- D. cortex cells

18. A tendon is a

- A. tissue joining bone to muscle
- B. tissue joining bone to bone
- C. tissue joining muscle to muscle.
- D. point where two bones meet.

19. In vertebrates the joint between axis and atlas vertebrae is known as

- A. ball and socket joint.
- B. hinge joint
- C. pivot joint
- D. gliding joint.

20. Which one of the following is the best description of respiration?

- A. breathing in oxygen and breathing out carbon dioxide
- B. absorption of oxygen in the alveoli
- C. release of energy in the cell.
- D. gaseous exchange

21. The addition of humus to a sandy soil will

- A. decrease the capillarity of the soil.
- B. improve the water retention of the soil.

- C. increase the aeration of the soil.
 - D. decrease its mineral content.
22. Antigens stimulate the production of
- A. antibodies
 - B. antitoxins
 - C. leucocytes
 - D. lysines
23. A knee jerk is a
- A. conditioned reflex action
 - B. reflex action
 - C. voluntary action
 - D. taxis action
24. The hormone that is responsible for the conversion of glycogen to glucose in the liver is
- A. secretin
 - B. thyroid
 - C. adrenaline
 - D. insulin
25. In one day old tadpoles, gaseous exchange is performed by
- A. lung
 - B. external gills
 - C. internal gills
 - D. skin of the tail
26. From which of the following regions of the body would you find vertebrae with less developed centra?
- A. thoracic
 - B. lumbar
 - C. cervical
 - D. sacral
27. Which one of the following types of farming helps in maintaining soil fertility?
- A. crop rotation
 - B. bush fallowing
 - C. monoculture
 - D. mixed farming
28. Which one of the following groups of animals posses an open circulatory system?
- A. amphibian
 - B. insects
 - C. mammals
 - D. fish
29. Which one of the following monosaccharide is a common component of sucrose, starch and glycogen?
- A. fructose
 - B. galactose
 - C. glucose
 - D. mannose
30. Blockage of the bile duct would impair the digestion of
- A. proteins
 - B. cellulose
 - C. starch

D. fats

SECTION B

Answer **all** questions. Answers must be written in the spaces provided.

31. Complete the table below by stating one function and one effect of deficiency in flowering plants for each of the listed element.

ELEMENT	FUNCTION	EFFECT OF DEFICIENCY
Nitrogen		
Phosphorous		
magnesium		

(b). Name the symptoms caused by the deficiency of each of the following elements in the diet of man.

i. Iodine

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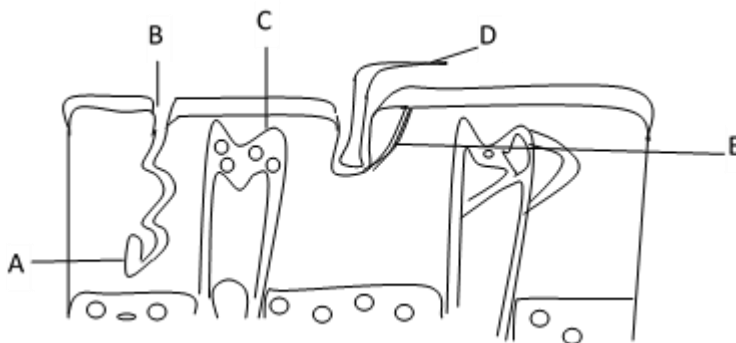
ii. Calcium

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iii. Iron

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32. Figure below shows a longitudinal section of a human skin.



(a). Name the parts labeled A to E

- A.....
- B.....
- C.....
- D.....
- E.....

(b). State the function of each of the parts labeled A, C, D and E

- A.....
- C.....
- D.....
- E.....

(c). Using any one observable feature on the diagram, suggest the type of temperature condition the skin is responding to. State the observable feature as a reason for your answer.

Temperature condition

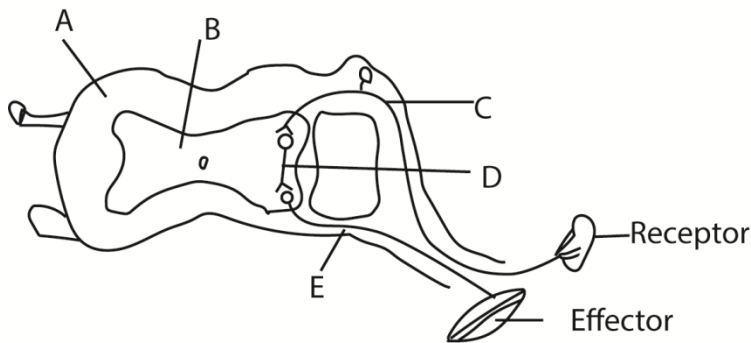
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Observable feature

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33. Study figure below and answer the questions that follow.



(a). Name the parts labeled A to E on the diagram.

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(b). By means of an arrow show the direction of impulse propagation in the diagram above

(c). (i) What meant by the term accommodation of an eye

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(ii). Explain how eye is able to see a near object.

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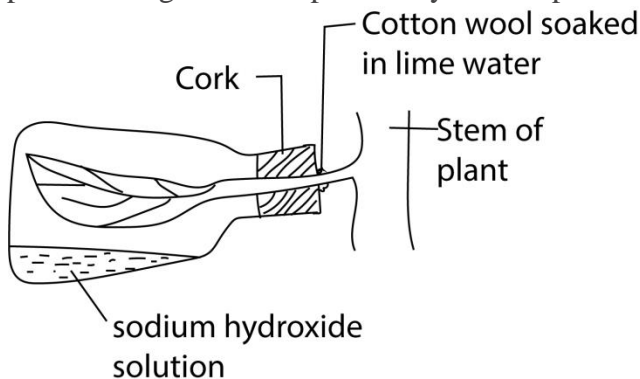
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34. The figure below is an experiment set up to investigate the condition for photosynthesis. The plant is in light but had previously been kept in the dark overnight.



(a) Which condition is being investigated?(01mark)

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(b) why

(i) It was necessary to keep the plant in the dark overnight? (1mark)

.....

(ii) Is left attached to the plant? (01mark)

.....

(c) What is the purpose of sodium hydroxide in the flask? (01mark)

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(d) How would you test for starch after some time? (04marks)

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SECTION C

Attempt only two questions of your choice from this section.

35 (a). What is meant by tissue respiration?

.(b). Explain why tissue respiration is an important process.

(c). Describe an experiment to show that germinating seeds liberate carbon dioxide.

36(a). What is an endocrine gland? (2 marks)

(b). Draw and label a diagram to show the location of the endocrine glands in the human body?(7MKS)

(c). Outline the role of the master gland in the body. (6 MKS)

37(a). What is transpiration?

(b).State the environmental factors that affect the rate of transpiration.

(c) Describe an experiment to show that a plant transpires.

38. Give the importance to the plants of each of the components that make up a fertile soil.

END