

NAME.....

ADMN. NO..... CLASS.....

231/1

BIOLOGY

PAPER 1

THEORY

JANUARY 2016

TIME: 2HRS.

**ALLIANCE HIGH SCHOOL EXAMINATION-2016**

**BIOLOGY**

PAPER 1

(THEORY)

2HRS

**INSTRUCTIONS TO CANDIDATES**

There are 38 questions printed. Answer ALL questions in the spaces provided.

**FOR OFFICIAL USE ONLY**

QUESTION	MAXIMUM SCORE	CANDINDATES SCORE
1-38	100	

1. Name the causative agent of the following diseases in man (2mks)

i. Candida.....

ii. Syphilis.....

2. State two structural differences between DNA and RNA (2mks)

DNA	RNA

3. State two assumptions made while using capture and recapture method of population estimation (2mks)

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4. State two modifications on the kidney nephron of desert mammals (2mks)

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5. What is the importance of seed dispersal? (3mks)

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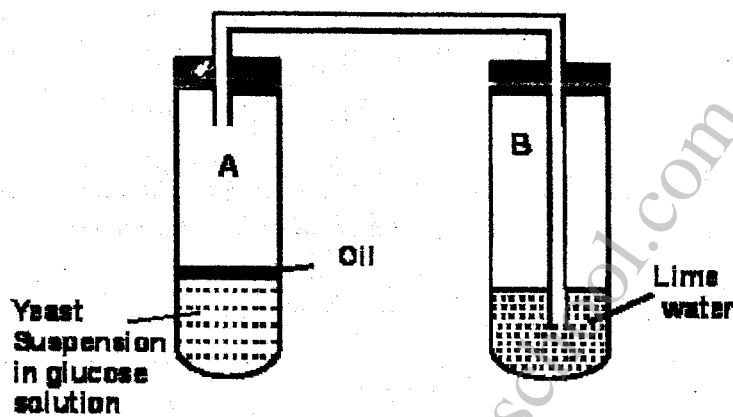
6. In an investigation the pancreatic duct of a mammal was blocked. It was found that the blood sugar regulation remained normal while, food digestion was impaired. Explain these observations. (2mks)

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7. Explain why glucose does not appear in urine of a healthy person even though it is filtered in the Bowman's capsule of a mammal. (2mks)

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8. The diagram below illustrates an experiment used to demonstrate a certain biological process.



Before adding yeast suspension the glucose solution was first boiled and then cooled.

a) What process is being demonstrated? (1 mark)

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b) Why was glucose solution boiled before adding yeast? (1 mark)

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c) Write a word equation to summarize the reactions taking place in tube A. (1 mark)

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9.

a. State the stage in cell division in which the following events occurs:-

i. Replication of the genetic material..... (1mk)

ii. Exchange of genetic material..... (1mk)

b. Name the organelles that perform the following functions. (2mks)

i. Synthesis of RNA.....

ii. Formation of spindle fibres.....

10. Name the division of the Kingdom Plantae with the following spore producing bodies. (2mks)

a) Sori.....

b) Sporangium.....

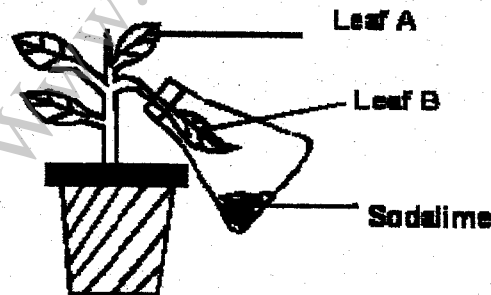
11. State two functions of muscles found in the alimentary canal of mammals. (2mks)

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12. Explain two ways in which xylem vessels are adapted to their function. (2mks)

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13. The diagram below shows an experiment carried out to investigate photosynthesis in potted plant which had been kept in the dark for 48 hours.



The set up left in the light for 7 hours. The leaf was tested for starch using iodine solution at the end of the experiment.

a. What would be the colour of leaf B when tested for starch? (1 mark)

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b. What is the function of soda lime? (1 mark)

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c. What was the aim of the experiment? (1 mark)

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14. State the function of coleoptile in the maize seedling. (1 Mark)

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15. State two advantages of internal fertilization. (2 Marks)

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16. State three ways by which plasmodium species is adapted to its way of life. (3 Marks)

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17. A flower was found to have the following characteristics: Inconspicuous petal, long feathery stigma, small light pollen grains.

a) What is the likely agent of pollination of the flower? (1mk)

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b) What is the significance of the long feathery stigma in the flower (1mk)

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18. Name a growth inhibitor in seeds. (1mk)

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19. Distinguish between karyokinesis and cytokinesis as used in cell division: (2mks)

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20. State the role of enzymes catalase in living cells. (2 Marks)

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21. Explain why it is advisable to cut thin sections of a specimen using a sharp razor blade before placing them on a microscope slide. (2 Marks)

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22. State one function of the following hormones.

a) Juvenile hormone (1 Mark)

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.....

a) Abscisic acid (1 Mark)

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.....

23. State the functions of each of the following parts of male reproductive system. (3mks)

a) Sertoli cells

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b) Epididymis

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c) Seminiferous tubules

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24.

a) Explain why blood clotting does not occur inside the blood vessels. (1 mk)

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b) Name a disorder of human blood that is caused by mutation (1 mk)

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25. A certain plant was found to have 22 chromosomes in its calyx cells. State the number of chromosomes present in the plants. (2mks)

a. Ovule .....

b. Endosperm .....

26.

a. Name two kinds of nuclei found in a mature pollen grain. (2mks)

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b. Name two tissues responsible for secondary growth in flowering plants. (2mks)

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c. Name two strengthening tissues in woody plants. (2mks)

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27. List down two features of the mammalian ileum that increases its surface area. (2mks)

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28. A group of students observed 8 cells across the diameter of the field of view of a light microscope. If the eye piece lens magnification was  $\times 5$  and objective lens magnification was  $\times 40$ . Work out the

actual diameter of each cell given that the diameter of the field of view was 0.5mm. Give your answer in micrometres. (4mks)

29. State two applications of auxins in crop production. (2mks)

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30. Name the respiratory surfaces of the following organisms: (3mks)

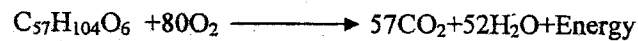
- a) Spider.....  
b) Mosquito larvae.....  
c) Nile Perch.....

31. Study the equation below and answer the question that follows:



- a) Identify the product represented by A. (1mk)  
.....  
b) Name the region in the alimentary canal where this process occurs. (1mk)  
.....  
c) Name the enzyme responsible for the above reaction. (1mk)  
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32. The oxidation of a certain food is represented by the chemical equation shown below:



- a) Calculate the respiratory quotient (RQ) of the food. (2mks)



b) Identify the food oxidized.

(1mk)

.....

c) State two functions of respiratory Quotient (RQ) (2mks)

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33. Name two tissues in plants which are thickened with lignin. (2mks)

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34.

a. Explain how sweating brings cooling effect of the body.

(2mks)

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b. Differentiate between hibernation and aestivation.

(2mks)

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35. Name the instruments used in measuring the following parameters in a habitat.

(2mks)

a) Light penetration .....

b) Wind speed.....

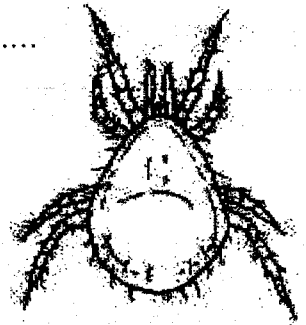
36.

a. The figure below represents an organism.

a) Name the phylum and class to which it belongs.

(2mks)

i. Phylum.....



ii. Class.....

b) Give two reasons for (ii) above (2mks)

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b. A biologist found a new organism. Using a light microscope, state two structures that can be used to distinguish whether the organism was of plant or animal origin.(2mks)

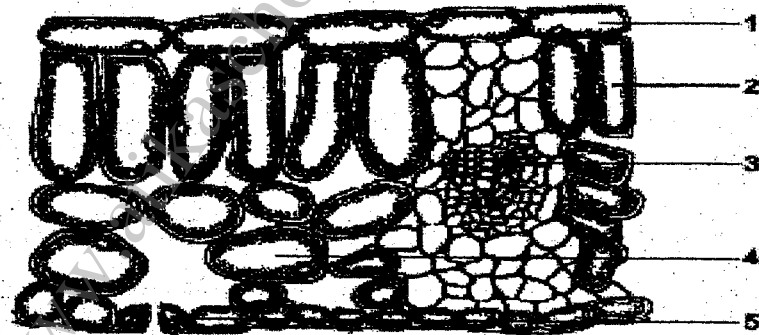
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37. Name the organisms found in root nodules of leguminous plants and their (2mks)

i. Organism.....

ii. Significance.....

38. The diagram below shows internal structure of a plant organ



a) Identify parts 1-4 (2mks)

1. .... 3. ....  
2. .... 4. ....

b) State two adaptations of (5) shown above to the function (2mks)

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THE END