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553/1

BIOLOGY

THEORY

PAPER

JUNE/JULY

TIME: 2 ½ HOURS

**MOCK EXAMINATIONS (S.1 and S.2 Work)**

**UGANDA CERTIFICATE OF EDUCATION**

**BIOLOGY**

**PAPER 1**

**2 HOURS 30 MINUTES**

***Instructions to candidates***

- Answer **ALL** questions in section **A** and **B**, plus **two** questions in section **C**.
- Write the answers to section **A** and **B** in the spaces provided and answers to section **C** in the answer booklet provided.

<b>For examiners use only</b>		
Question	Marks	Examiner's signature
A:		
B: No. 31 No. 32 No. 33		
C: No. No.		
<b>Total</b>		

## SECTION A (30 MARKS)

Attempt all questions in this section

Write your answers in the table at the end of section A

1. In an analysis of soil sample the following results were obtained: volume of the soil =  $200\text{cm}^3$ , volume of water added =  $300\text{cm}^3$ , volume of the water plus the soil after stirring =  $450\text{cm}^3$ . Calculate the volume of air in the soil sample.  
A. 10%      B. 20%      C. 25%      D. 30%
2. The amount of light directed through the focusing system of a microscope is determined by the  
A. Diaphragm      B. Mirror      C. objective lens      D. Eye piece lens
3. A patient of blood group O can only be transfused with blood group O because the patient's blood has  
A. Antigens A and B      C. Antigen A  
B. No antibodies      D. Antibodies A and B
4. Which of the following blood vessels has the lowest concentration of urea?  
A. Hepatic portal vein      C. Hepatic vein  
B. Renal artery      D. Renal vein
5. Which one of the following is absent in the epidermal cell of a plant leaf?  
A. Cellulose      C. Nucleus  
B. Chloroplast      D. Cell membrane
6. Which of the following activities may cause pollution of water.  
A. Mining      C. Bush burning  
B. Over cultivation      D. Excessive use of fertilizers
7. The reason why healthy plants don't grow well in water lodged soils is that ;  
A. Mineral salts are diluted      C. Mineral salts are leached  
B. The soils become too cold      D. There is poor aeration
8. Bile is important in food digestion in the duodenum because it;  
A. Breaks down fats into fatty acids and glycerol  
B. Provides suitable medium for enzyme action  
C. Catalyses the process of digestion  
D. Activates the digestive enzymes

9. The following are strategies of a parasite to survive except;
  - A. Inflicting minimum harm to the host
  - B. Affecting a wide range of hosts
  - C. Killing its hosts
  - D. Employing an intermediate host
  
10. Wind pollinated flowers have;
 

A. Loosely held anthers	C. Small anthers
B. Fused stamens	D. Stigma above the anthers
  
11. A leaf is usually boiled in water when testing for starch in order to;
  - A. Remove the chlorophyll
  - B. Obtain cooked starch
  - C. Kill the micro organisms in the leaf
  - D. Burst the starch grains and chlorophyll
  
12. Which of the following would increase the rate of diffusion
  - A. Lowering the temperature
  - B. Reducing the concentration gradient
  - C. Increasing the surface area
  - D. Increasing the diffusion distance
  
13. Which of the following is the characteristic of arteries to withstand high pressure
 

A. Having elastic walls	C. Being long
B. Possession of wide lumen	D. Possession of valves
  
14. A mutualistic association of bacteria with plant roots is an indication that '
  - A. The plant is unhealthy
  - B. The roots have been attacked by diseases
  - C. The soils around the roots lack nitrogen
  - D. Humus is lacking the soil
  
15. Which of the following results in the lowest rate of transpiration
 

A. Hot and windy	B. cold and windy	C. Hot and humid	D. cold and humid
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16. Which of the following is not a characteristic of leaves for carrying out photosynthesis?
 

A. Chlorophyll	B. Waxy cuticle	C. thin lamina	D. numerous veins
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17. Which one of the following set of characteristic classify arachnids?
  - A. Compound eyes and two main body parts
  - B. Eight legs and three main body parts
  - C. A pair of antennae and eight legs
  - D. No antennae and has eight legs

18. The lamina of a compound leaf
- A. Divides into few lobes
  - B. Divides into stalked lobes
  - C. Divides into many lobes
  - D. Divides into three leaflets
19. The endodermis of a stem cross section stains blue-black with iodine solution because it
- A. Manufactures starch
  - B. Stores starch
  - C. Transports starch and sugars
  - D. Stores starch and sugars
20. A housefly is adapted to quick transfer of diseases due to possession of
- A. Hairy body
  - B. Expended proboscis
  - C. A pair of wings
  - D. Big compound eyes
21. Strong heating of the soil sample is aimed at ;
- A. Removing air
  - B. Removing water
  - C. Removing organic matter
  - D. Destruction of soil structure
22. Earth worms improves organic content of the soil by
- A. Digging burrows
  - B. Releasing faecal materials
  - C. Mixing up soil particles
  - D. Feeding on dead matters
23. Absence of calcium to green plants leads to
- A. Little growth
  - B. poor root development
  - C. yellow leaves
  - D. stunted growth
24. Which one the following organic substances may not cause harm to man if contained in small amount in the body.
- A. Vitamins
  - B. Hormones
  - C. Minerals
  - D. Enzymes
25. Fungi like mucor promote growth of green plants by
- A. Recycling energy
  - B. Decomposing green plants after death
  - C. Recycling nutrients
  - D. Adding humus to soil after death
26. The lymphatic system is like the circulatory system in that they both
- A. Have nodes
  - B. Have capillaries
  - C. Have a network of arteries
  - D. Are closed system

27. Which one of the following is a structural adaptation of a root hair to high rate of water absorption

- A. Being numerous  
B. Contains xylem vessel  
C. Thin membrane  
D. Being highly concentrated

28. The following are characteristics of blood vessels

- (i) Presence of valves (iii) Wide lumen  
(ii) Thick walls (iv) Elastic walls

Which of the characteristics belong to veins

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

29. Which one of the following is not transported in blood.

- A. Amylase B. Urea C. Insulin D. Sodium chloride

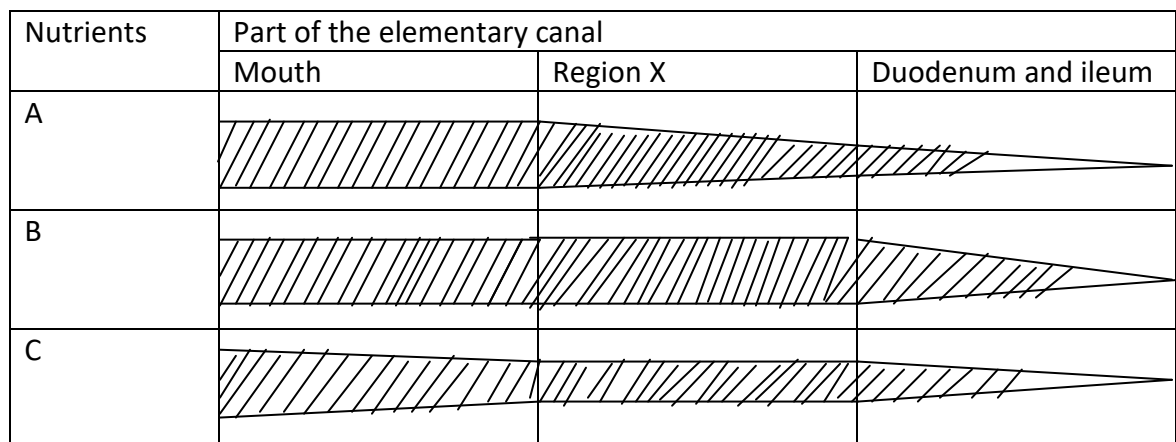
30. Mode of nutrition of rhizopus is

- A. Heterotrophism C. Saprophytism  
B. Autotrophism D. Parasitism

### SECTION B (40 MARKS)

Answer ALL questions in this section. Your answers in the spaces provided at the end of each question.

31. The figure below shows the amount of different nutrients in food as food passes along the alimentary canal. The width of each band shows the amount of nutrients. Study it carefully and answer the following questions:



(a)(i) Identify region X of the alimentary canal (1mk)

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(ii) Describe the digestion of each food substances at it moves along the alimentary canal  
(5mks)

A:

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B:

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C:

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b) Suggest the types of food each of A, B, and C would be giving a reason for each case.  
(4 ½ mks)

A:

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B:

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C:

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- c) Using the figure and your own knowledge, explain what happens to food component A from the time it enters the mouth to when it leaves the ileum. (4mks)

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- d) Explain why the amount of B doesn't begin to decrease immediately after entering the duodenum. (2 ½ mks)

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- e) Giving a reason, why are all food substances do not get digested in all parts of the alimentary canal? (2mks)

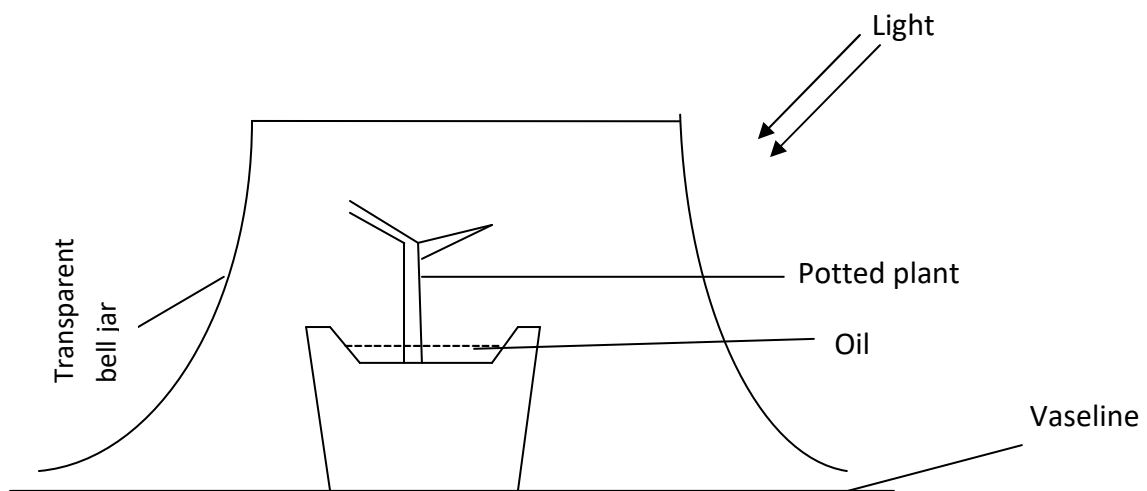
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32. The apparatus set up below is aimed to study a biological experiment



- a)(i) What is the aim of the set up above ( ½ mk)

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- (ii) What is the role of ( 1 ½ mks)

Oil .....

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Vaseline .....

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Transparent bell jar .....

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b(i) State the three other environment factors that may affect the results in experiment above (3mks)

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(ii) Explain how each of the factors given in b(i) above affect the result on experiment above (5mks)

33. In an experiment, potato cylinders were placed in solutions of various sugar (sucrose) concentration for 2 hours. The results were recorded in the table below;

Concentration of sugar solution %	Initial length of potato cylinder in cm	Length of potato cylinder after 2 hours in cm
0% (distilled water)	4.00	4.30
5%	4.00	4.00
50%	4.00	3.70
Left in open air	4.00	3.95

a) Explain the change in size of

(i) Cylinder placed in distilled water (3mks)

(ii) Cylinder placed in 50% sucrose solution (3mks)

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b) What is the approximate sugar concentration of potato cell sap? Explain your answer. (2mks)

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c) Account for the change in length of the potato cylinder placed in open air. (1mk)

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### SECTION C (30 Marks)

*Attempt only two questions from this section write your answers in the answer sheet provided*

34. With the aid of diagram, describe the movement of water in a woody plant from the time it is absorbed from the soil up to when it is lost into atmosphere.
35. (a) Define
- (i) Blood (1mk)
  - (ii) Double circulation (1mk)
- (b) Describe how a molecule of water in the ileum capillaries reaches alveolus of the lungs (5mks)
- (c) How is blood adapted for its functions (8mks)
35. (a) State five methods used to conserve soil (5mks)
- (b) Explain how each of the methods stated above enables the soil to be conserved (10mks)
36. (a) What is metamorphosis. (2mks)
- (b) Describe the life cycle of anopheles mosquitoes (7mks)
- (c) (i) Explain how man reduce deaths caused by malaria (4mks)
- (ii) State the affect of malaria to man (2mks)

**END**