

NAME:CENTRE/INDEX NO:

SIGNATURE:

553/1
BIOLOGY (THEORY)
PAPER 1
AUGUST 2013
2 ½ HOURS

BUGIRI DISTRICT SECONDARY SCHOOLS EXAMINATIONS BOARD
Uganda Certificate of Education

MOCK EXAMINATIONS 2013
BIOLOGY
PAPER 1
2 Hours 30 Minutes.

INSTRUCTIONS:

Answer all questions in section A and B plus two questions from section C.
Write answers to section A in the boxes provided, answers to section B in the spaces provided and the answers to section C in the answer booklets provided.

FOR EXAMINERS' USE ONLY

Section	Mark	Examiner
A:		
B: No. 31		
No.32		
No.33		
C: No.		
No		
Total		

SECTION A (30 Marks)

1. Which of the following is the least important benefit of seed and fruit dispersal to plants
A. Increasing chances of finding better habitat for multiplication
B. Avoiding being eaten by animals in its original habitat
C. Reducing competition for food resulting from over crowding
D. Ensuring colonization of different habitats

2. The role of dilute hydrochloric acid added to a solution when testing for non reducing sugars is to
A. Neutralize the solution
B. Provide a suitable PH medium for action of Benedict reagent.
C. Hydrolyze the non reducing sugars
D. Kill bacteria in the test solution.

3. Which one of the following is not an adaptation of plants to reduce water loss
A. Fewer and smaller leaves
B. Leaves reduced to spines
C. Rolled up leaves
D. Alternative leaf arrangement.

4. Which one of the following sets consists of bones of the fore limb in man?
A. Femur, tibia, humerus
B. Radius, ulna, femur
C. Tibia, fibula ulna
D. Humerus, radius, ulna.

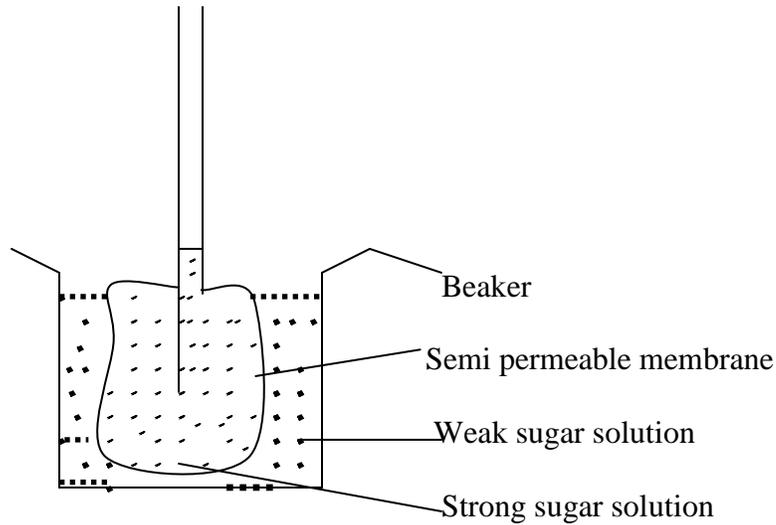
5. Which one of the following organs is supplied and drained by a vein?
A. Liver
B. Stomach
C. Kidney
D. Pancreas

6. In the Burette test, the colour which indicates a positive result is;
A. Blue
B. Purple
C. Pink
D. Brown

7. Which one of the following contains a set of cells which are all haploid?
 A. Pollen grains, ovules, root hairs.
 B. Sperm, pollen grains, ova
 C. Sperm, ovules brain cell.
 D. Germinal cells, ovules, ova
8. In peas, yellow seed colour is dominant over green seed colour. What would be the phenotype of the offspring if a true breeding yellow seeded plant is crossed with a green seeded plant in the F₁ off spring?
 A. 2yellow : 2 green
 B. 3yellow: 1 green
 C. 3 yellow :1 yellow
 D. All yellow
9. Which one of the following consists of a set of characteristics which are all for wind – dispersed fruits and seeds?
 A. parachute like, hooked and high
 B. dry, curved inwards and spiked
 C. parachute like winged and light
 D. Succulent, buoyant and light.
10. Which one of the following is a modified tap root?
 A. Onion
 B. Carrot tuber
 C. Cassava tuber
 D. Irish potato
11. Which one of the following activities generates heat in the human body during temperature regulation?
 A. Shivering of the body
 B. Constriction of peripheral blood vessels
 C. Contraction of erector pilli muscle
 D. Dilation of the peripheral blood vessels.
12. Under which one of the following conditions will air in the lungs be expelled into the atmosphere during breathing? When the
 A. ribs are raised
 B. volume of the thorax is increased
 C. the diaphragm is flattened
 D. pressure of the thorax is increased
13. Albinism is a recessive character in humans. An albino child is likely to result from a cross between
 A. An albino father and normal father
 B. Both parents who are normal but carries for albinism
 C. A carrier mother for albinism and normal father
 D. Both parents who are normal

14. Person with blood group O is said to be a universal donor because
- A. lacks antibodies in his serum
 - B. has both the antigens and antibodies in his blood
 - C. has only antigen A in his blood cells
 - D. lacks antigen A in his red blood cells
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15. A medium of low PH stops the action of the enzyme
- A. pepsin
 - B. lipase
 - C. ptyalin
 - D. maltase
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16. The type of muscles found in the gut, excretory systems and blood vessel of a mammalian body is described as
- A. Striped
 - B. Skeletal
 - C. Voluntary
 - D. Involuntary
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17. Which one of the following is common to both respiration and photosynthesis?
- A. Energy is released
 - B. Both occur in all living cells
 - C. Food oxidation is common to both.
 - D. Oxygen is utilized
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18. A vertebra has a short neural spine and vertebrarterial canals. The vertebra is likely to be
- A. Cervical vertebra
 - B. Thoracic
 - C. Vertebra
 - D. Lumber vertebra
 - E. Caudal vertebra
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19. Which one of the following activities results into up stroke during flight in birds?
- A. Movement of the humerus down
 - B. Contraction of large flight muscles and relaxation of small flight muscles
 - C. Contraction of small flight muscles and large flight muscles
 - D. Faster air movement on an upper surface the lower surface of wings
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20. The figure below shows an experiment that was set up and left to be observed the following day.



Which of the following events will have taken place the following day?

- (i) Solution 2 will have risen higher in the capillary tube.
 - (ii) The level of solution 1 will have fallen
 - (iii) The level of solution 2 will have fallen
 - (iv) Concentration of solution 2 in the beaker will not have changed at all.
- A. (i) and (iii)
 B. (ii) and (iv)
 C. (i) and (ii)
 D. (ii) and (iv)

21. Which of the following substances is secreted in mammalian sweat?

- A. Urea, ammonia, water
- B. Urea, carbondioxide, sodium chloride
- C. Urea, water, sodium chloride
- D. Urea, carbondioxide, water

22. Meiotic cell division is important because it ensures that

- A. there is variation in the number of chromosomes
- B. the number of chromosomes of a species do not double at fertilization
- C. the chromosome of daughter cells are identical by producing diploid cells
- D. Bad traits are not passed on from parents to offsprings.

23. Which one of the following is not transported in blood?

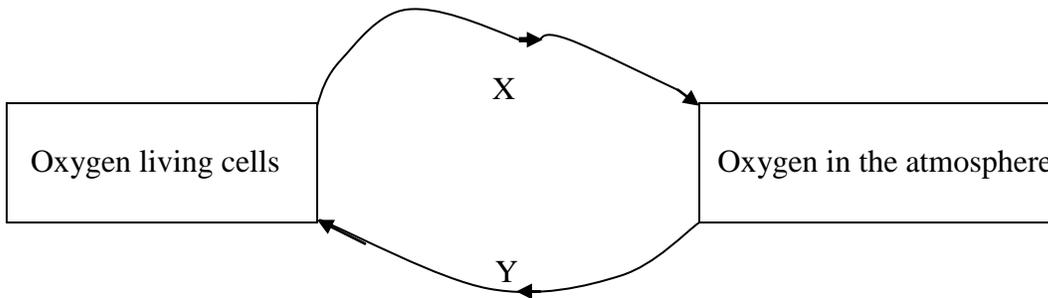
- A. Amylase
- B. Urea
- C. Insulin
- D. Sodium chloride

24. Which of the following cells in a leaf contain the least number of chloroplasts?
 A. Palisade cells
 B. Guard cells
 C. Epidermal cells
 D. Spongy mesophyll cell

25. The dry fruit which splits open along both sutures is
 A. a follicle
 B. a capsule
 C. an achene
 D. a legume

26. What would happen to an enzyme if the temperature of the medium was increased to above 50°C. the enzymes would be
 A. Killed
 B. Activated
 C. Denatured
 D. Inactivated

27. The figure below shows the cycling of oxygen between the atmosphere and living cells.



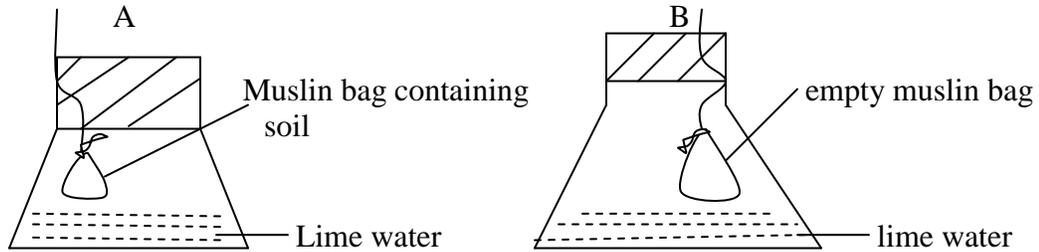
Which process is represented by y?
 A. Excretion
 B. Respiration
 C. Decay
 D. Photosynthesis

28. Which of the following characters shows discontinuous variation?
 A. Blood group
 B. Height
 C. Intelligence
 D. Skin colour in people

29. Which of the following sets consists of hormones produced by mammalian reproductive organs?

- A. Testosteron, oestrogen
- B. Luteinising hormone, oxytocin
- C. Oestrogen, Gonadotrophin hormone
- D. Prolactin, testosteron

30. The diagram below shows an experiment set up to investigate soil components.



What would be observed in the flasks after some time?

- A. Lime water in A remains clear while in B it turns ,milky
- B. Lime water in both flasks turn milky
- C. Lime water in A turns milky while in B it remains clear
- D. Lime water in both flasks remains clear.

SECTION B (40 marks)

31. The following data represents the results obtained during a study on the rate of transpiration under two conditions using a photometer.

Stomatal aperture (min)	0	4	9	13	11	19
Rate in still air (mm ³ /min)	0	33	42	45	46	46
Rate in windy air (mm ³ /min)	0	35	57	69	78	87

- a) Plot a graph showing the variation in rate of transpiration with stomatal aperture for the two conditions on the same axes (10 marks)
- b) Describe the shape of the graph in still air. (2 marks)

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c) Explain the shapes of the graphs in still air. (02 marks)

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d) Compare and explain the rate of transpiration still and windy air. (02 marks)

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e) (i) What is the stomata aperture when the rate of transpiration in air is still 25mm^3 per minute? (1 mark)

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(ii) Apart from the conditions mentioned above, state three other factors which affect the rate of transpiration. (03 marks)

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32. a) Explain briefly what you understand by the terms (1 ½ marks)
(i) meiosis

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33. The figure below is an experimental set up to investigate the conditions for photosynthesis. The plants is in light but previously had been kept in darkness over night

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

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b) Why
(i) Was it necessary to keep the plant in the dark overnight? (01marks)

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SECTION C (30 MARKS)

Answer any two questions from this section.

Additional questions answered will not be marked.

Answers to this section are to be written in the answer booklets provided

34. a) Distinguish between self and cross pollination. (4 marks)
b) Describe how fertilization takes place in a flowering plant. (11 marks)
35. a) Briefly describe the digestive process that takes place in
(i). the duodenum (03 marks)
(ii). the ileum. (04 marks)
b) How is the ileum adapted for its function of absorption of food? (08 marks)
36. a) Why is it important to maintain a constant body temperature? (04 marks)
b) How does mammalian body maintain a constant temperature? (11marks)
37. a) Describe an experiment to show that soil contains living organisms. (10 marks)
b) Outline the importance of living organisms in the soil. (05 marks)

END