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553/1

Biology

(Theory)

Paper 1

JUN/JUL

2 $\frac{1}{2}$ hours

Uganda Certificate of Education

BIOLOGY(THEORY)

PAPER 1

2 HOURS 30 MINUTES

INSTRUCTIONS

- A. Answer all questions in sections A and B in the spaces provided on the question paper and any two questions from section C.*
- B. Answer section A by writing the correct alternative A, B, C or D in the box on the right-hand side of each question.*

FOR EXAMINER'S USE ONLY		
Section	Marks	Examiner's Initials
A		
B 31		
32		
33		
C No:		
No:		
Total		

SECTION A: (30 MARKS)

1. Active transport occurs in the following structures except

A. Kidney tubules	C. Phloem sieve tubes	<input style="width: 50px; height: 30px; border: 1px solid black;" type="text"/>
B. Xylem vessels	D. Ileum villi	
2. Magnification of a specimen by a microscope with objective lens of X40 was X600. What was the eye piece magnification?

A. 15	C. 2400	<input style="width: 50px; height: 30px; border: 1px solid black;" type="text"/>
B. 10	D. 560	
3. Which of the following is **not** a function of humus in the soil?

A. Improve aeration	C. Increase fertility	<input style="width: 50px; height: 30px; border: 1px solid black;" type="text"/>
B. Prevent soil erosion	D. Increase water retention	
4. Which of the following is a macro element?

A. Zinc	C. Calcium	<input style="width: 50px; height: 30px; border: 1px solid black;" type="text"/>
B. Copper	D. Manganese	
5. A group of different species in a given locality is

A. Population	C. Ecosystem	<input style="width: 50px; height: 30px; border: 1px solid black;" type="text"/>
B. Community	D. Biosphere	
6. When a ring of bark is cut round the stem of the tree, the tree dies because.

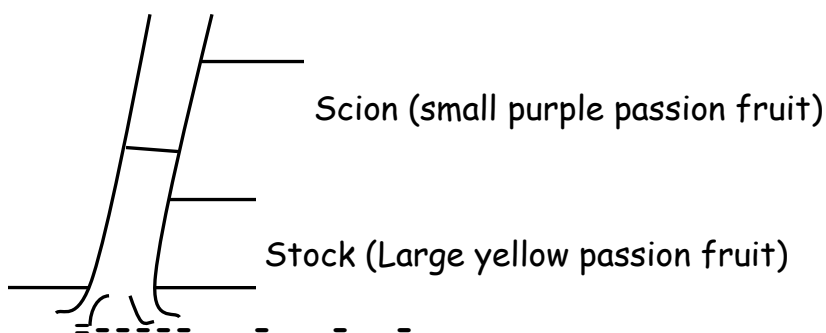
A. Water supply to the roots is cut off	<input style="width: 50px; height: 30px; border: 1px solid black;" type="text"/>
B. Food supply to the roots is cut off	
C. Water and food supply to the roots is cut off	
D. Air supply to the roots is cut off	
7. Which of the following is **not** a product of aerobic respiration?

A. Energy	C. Ethanol	<input style="width: 50px; height: 30px; border: 1px solid black;" type="text"/>
B. Water	D. Carbon dioxide	
8. In which place may such a composition of substances be found?
 Water 92%
 Proteins 0%
 Glucose 0.1%
 Urea 0.03%

A. Blood	C. Urine	<input style="width: 50px; height: 30px; border: 1px solid black;" type="text"/>
B. Glomerulus	D. Bauman's capsule	
9. The turning of a stem tendril round a support is a

A. nastic response	C. tropic response	<input style="width: 50px; height: 30px; border: 1px solid black;" type="text"/>
B. tactic response	D. random response	

10.



In the above graft the fruit produced will be

- | | |
|-----------------|-----------------|
| A. Large yellow | C. Large purple |
| B. Small yellow | D. Small purple |

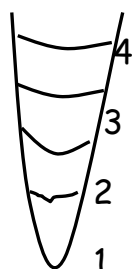
☐

11. At a joint bone are kept in position by

- | | |
|--------------|--------------|
| A. Ligaments | C. Cartilage |
| B. Tendons | D. Muscles |

☐

12. The figure shows a root tip. In which area are the cells actively dividing?



- | | | | |
|------|------|------|------|
| A. 1 | B. 2 | C. 3 | D. 4 |
|------|------|------|------|

☐

13. A man of blood group AB marries a woman heterozygous for blood group A. What is the probability of getting a child of blood group A.

- | | |
|--------|---------|
| A. 25% | C. 75% |
| B. 50% | D. 100% |

☐

14. Contraceptive pills work by

- | | |
|----------------------------|-------------------------|
| C. Destruction of ovum | E. Preventing ovulation |
| D. Preventing implantation | F. Causing menstruation |

☐

15. Destruction of snails in a water body is a control measure for

- | | |
|---------------|--------------------|
| A. Malaria | C. Trypanosomiasis |
| B. Tape worms | D. Schistosomiasis |

☐

16. Which of these is useful for dividing class insecta into its orders?

- | | |
|-------------------|-----------------------|
| A. Body divisions | C. Number of wings |
| B. Number of legs | D. Number of antennae |

☐

17. Pitching in fish is controlled by

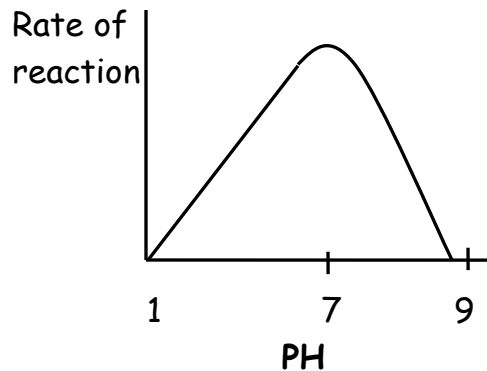
- | | |
|-----------------------------|------------------------------|
| A. Pectoral and pelvic fins | B. Pectoral and ventral fins |
|-----------------------------|------------------------------|

C. Dorsal and ventral fins



D. Dorsal and pelvic fins

18. Which enzyme is involved in a reaction of activity shown by the graph?



A. Pepsin

C. Rennin

B. Amylase

D. Maltase



19. Which of the following is the right passage for sperms?

A. Epididymis, vasdeferens, bladder, urethra

B. Seminiferous, vasdeferens, Epididymis, Vas deferens, Urethra.

C. Epididymis, Vasdeferens, Prostate gland, Urethra.

D. Seminiferous tubule, vasdeferens bladder, Urethra



20. Which of the following is an adaptation of aquatic plants for gaseous exchange?

A. Large air spaces

C. Absence of stomata

B. Very flexible stem

D. Thick cuticle



21. 300cm³ of water is added to 200cm³ of sand which contains 25% air. After stirring what will be the total volume of the mixture.

A. 50cm³

C. 550cm³

B. 450cm³

D. 500cm³



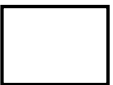
22. A dry fruit which opens along many longitudinal sutures is called a

A. Capsule

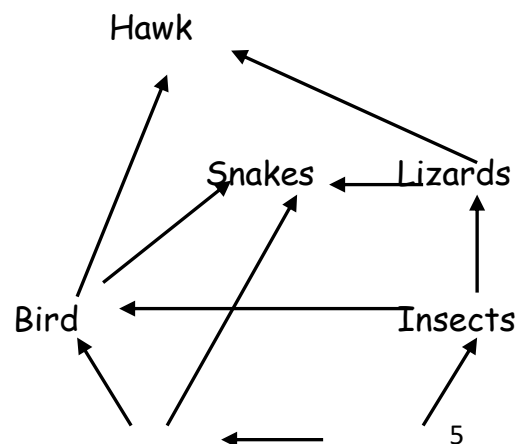
C. Legume

B. Follicle

D. Cypsela



23. In the food web below which organisms are of the same trophic level?

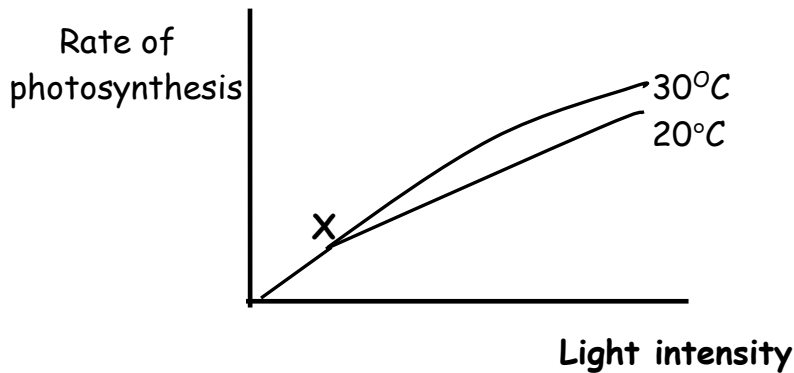


Snails

Land plants

24. Which of the following is not concerned with the sense of balance?
- | | | |
|--------------------------|--------------------------|--------------------------|
| A. Land plant and snails | C. Hawk and snake | <input type="checkbox"/> |
| B. Snake and snails | D. Land plant and Lizard | <input type="checkbox"/> |
| A. Utriculus | C. Cochlea | <input type="checkbox"/> |
| B. Succulus | D. Semicircular canals | <input type="checkbox"/> |

25.

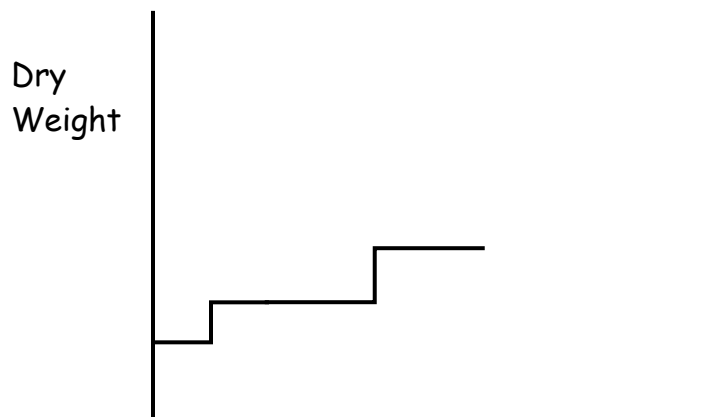


The above graph shows the rate of photosynthesis with increasing light intensity at two different temperatures.

The limiting factor at point X is.

- | | | |
|-------------------------|--------------------------------|--------------------------|
| A. Enzyme concentration | C. Carbondioxide concentration | <input type="checkbox"/> |
| B. Temperature | D. Light intensity | <input type="checkbox"/> |
26. A faulty pituitary gland may result into
- | | | |
|--------------------------------|-------------------------------|--------------------------|
| A. Low secretion of insulin | C. Low secretion of thyroxin | <input type="checkbox"/> |
| B. High secretion of adrenalin | D. High secretion of insulin. | <input type="checkbox"/> |
27. Pruning plants makes them bushy due to
- | | | |
|--------------------------|----------------------------------|--------------------------|
| A. Competition for light | C. Accumulation of raw materials | <input type="checkbox"/> |
| B. Stunted growth | D. Breakage of apical dominance | <input type="checkbox"/> |

28.



Time

The above graph shows growth by change in weight over time. This is a growth pattern for.

A. Grass hopper

C. Toad

B. Lizard

D. Man

29. Lack of ADH causes

A. Diabetes mellitus

C. Gigantism

B. Diabetes insipidus

D. Cretinism

30. The passing on of antibodies from mothers to baby through breast feeding is

A. Natural immunity

C. Hereditary immunity

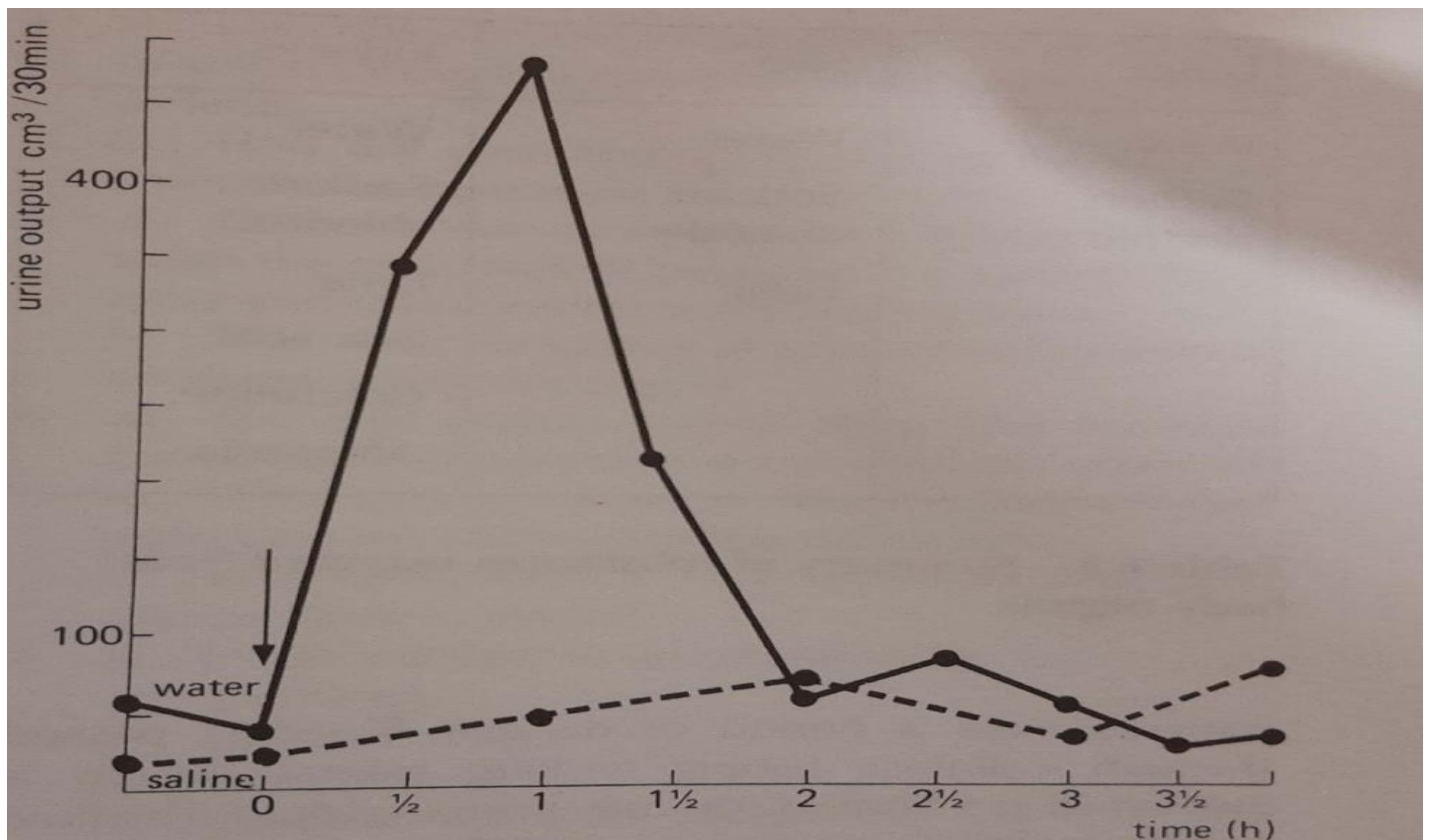
B. Acquired immunity

D. Passive immunity

SECTION B: (40 MARKS)

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

The graph below shows the response to drinking one litre of water, and on the following day one litre of 0.96% sodium chloride solution by a healthy man.



a) Describe the variation in the Urine output for the first 2hours

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(03marks)

b) Explain the difference in the effect of drinking water and saline on the urine output in the first hour

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(10marks)

c) Suggest an explanation why a healthy man was used in this investigation.

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(03marks)

a. Explain why drinking saline which is 3% may cause death in human

.....

.....

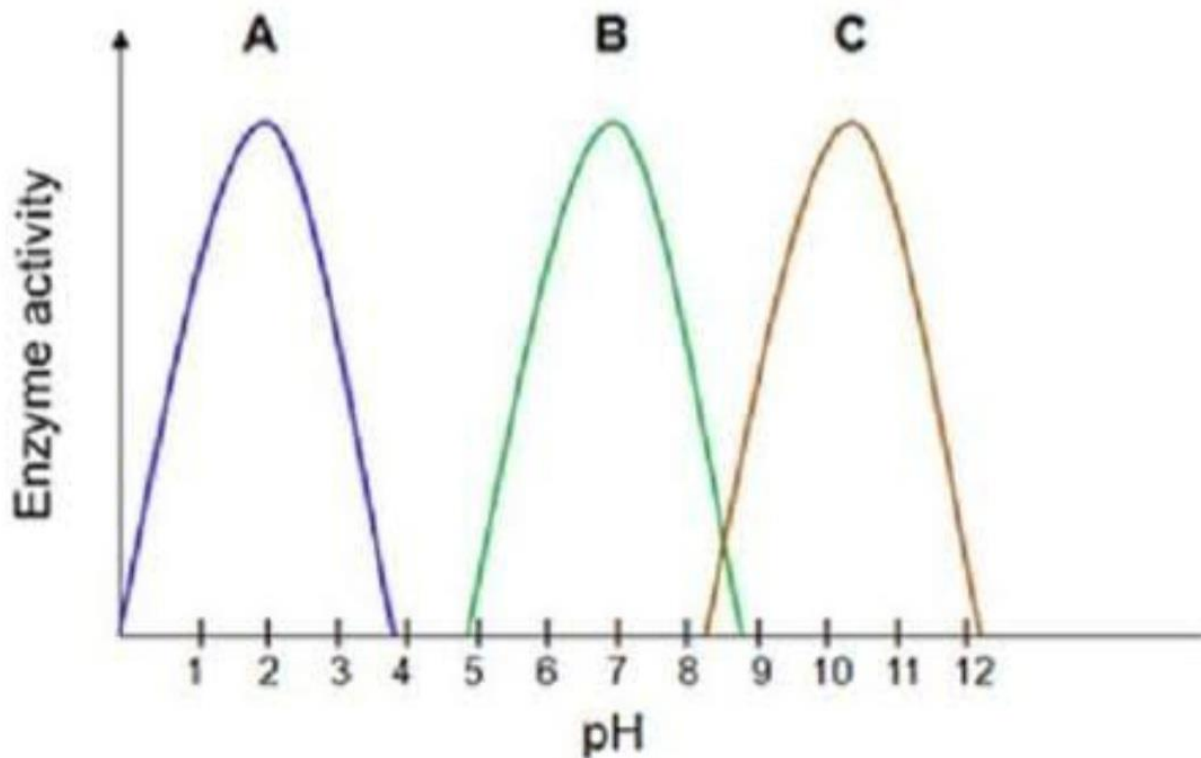
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(04mark)

31. Fig below shows the action of enzymes A, B and C in different pH media.



(i) Identify giving reasons enzymes **A**, **B** and **C**.

Enzymes	Identity	Reasons
A		
B		
C		

(03marks)

(ii) Name the organ of the human alimentary canal where each enzyme **A**, **B** and **C** are found.

Enzyme **A**

Enzyme **B**

Enzyme **C**.....

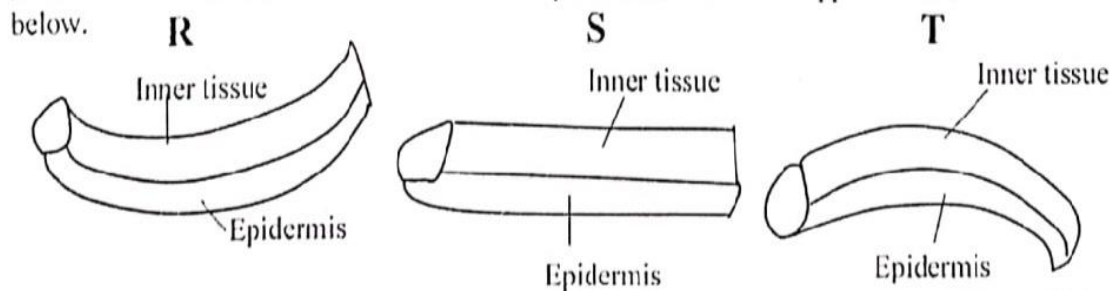
(03 marks)

(iii) Suggest the food acted upon by each enzymes **A** and **B** and state the end product.

Enzyme	Food acted upon	End product/s
A		
B		
C		

(03 marks)

32. (a) Equal pieces of leaf stalks were cut to form 6cm in length. They were split longitudinally into two halves. Three pieces of the cut leaf stalks were placed in each of the three petri-dishes.
- Different concentrations of sugar solutions were put into each of the petri-dishes and the petri dishes were covered for 15minutes. Afterwards leaf stalks were removed from the petri-dishes and their appearances were as shown below.



a) Identify terms used to describe sugar solutions in the Petri dishes as compared to the plant tissue fluid.

R.....

S.....

T.....

(03 marks)

b) Explain the results observed in the leaf stalk R and T

.....

(06 marks)

c) State three significances of the above process to plants

.....

(03 marks)

SECTION C:30 marks

Answer **two** questions from this section

33. (a) What is meant by the term parasitism? (02marks)
- b) Give three effects of ecto-parasites on their hosts. (03marks)
- c) Describe how a tapeworm is adapted to its parasitic mode of life. (10marks)
34. (a) Explain why human waste and urine **MUST** be properly disposed off? (07 marks)
- b) As a biology student of S.4, which advice would you give to your town clerks to improve your home town. (08marks)
35. (a) Explain what happens when
- i) A bright light from a torch beam is directed into the eye of man. (06marks)
- ii) Light shines on the coleoptile(shoot) of a maize seedling from one side (05marks)
- b) How do these responses differ from one another? (04marks)
36. (a) With examples distinguish between the following
- i) sex linked and sex-limited characteristics (04 mark)
- ii) Gene and allele (04 mark)
- (b) What are the possible blood groups likely to be inherited by children born to a group A mother and a group B mother. Explain your reasoning with a genetic cross(es). (07 marks)

END

BABALANDA SERIES