

NameIndex No.....

Signature.....

553/1
BIOLOGY
(Theory)
Paper 1
July/August 2019
2 ½ hours

ASSHU - RWENZORI REGION ACADEMIC BOARD (ARRAB)

Uganda Certificate of Education

MOCK EXAMINATIONS

BIOLOGY

Theory

Paper 1

2 hours 30 minutes

INSTRUCTIONS TO CANDIDATES:

*This paper consists of **three** sections **A**, **B** and **C**.*

*Answer **all** questions in section **A** and **B**, plus **two** questions from section **C**.*

*Write answers to section **A** in the boxes provided on the right hand side of each question, answers to section **B** in the spaces provided and answers to section **C** in the answer sheets provided.*

For Examiner's use only		
Section	Marks	Examiners Initials
A: 1 - 30		
B: No. 31		
No. 32		
No. 33		
C: No.		
No.		
TOTAL		

SECTION A: (30 MARKS)

1. Which one of the following adaptations of the ileum, slows down food, gives enough time for digestion and absorption.

A. Length of Ileum
B. Thin epithelium
C. Coiling of ileum
D. Dense network of blood capillaries

☐

2. Which one of the following parts of the skin contains sweat glands?

A. cornified layer
B. epidermis
C. dermis
D. hypodermis

☐

3. During flight in birds, the muscles that raise the wing are the

A. pectoralis major
B. pectoralis minor
C. direct muscles
D. indirect muscles

☐

4. The site for gaseous exchange in an insect is the

A. spiracles
B. tracheae
C. brancheoles
D. tracheoles

☐

5. The following members of the kingdom protista are heterotrophic and animal-like except?

A. Trypanosome
B. Amoeba
C. Euglena
D. Paramecium

☐

6. Which one of following is least considered when constructing a dichotomous key?

A. Colour
B. Reduced organs
C. External features
D. Internal features

☐

7. Which one of the following fruits splits open on its own when mature?

A. Capsule
B. Follicle
C. Legume
D. Achene

☐

8. From the receptor to the grey matter, an impulse travels through the

A. spinal cord
B. motor neurone
C. sensory neurone
D. relay neurone

☐

9. In a seed, the embryo is composed of
- | | | |
|--------------------------|--------------------------|--------------------------|
| A. Plumule and cotyledon | C. Radicle and seed coat | ☐ |
| B. Endosperm and radicle | D. Plumule and radicle | |
10. Which one of the following reagents tests for the presence of proteins during food test?
- | | | |
|------------------------|--------------------|--------------------------|
| A. Millons reagent | C. Iodine solution | ☐ |
| B. Benedict's solution | D. Sudan iii | |
11. In which of the following chambers of a ruminant, does digestion by usual mammalian digestive enzymes take place?
- | | | |
|--------------|-----------|--------------------------|
| A. Abomasum | C. Omasum | ☐ |
| B. Reticulum | D. Rumen | |
12. Which one of the following lacks xylem vessel?
- | | | |
|--------------|----------------------|--------------------------|
| A. Root tip | C. Lateral root | ☐ |
| B. Root hair | D. Adventitious root | |
13. Immediately after digestion, which organ first receives absorbed digested food?
- | | | |
|-----------|-----------|--------------------------|
| A. Spleen | C. Kidney | ☐ |
| B. Liver | D. Heart | |
14. Which one of the following is an example of a reflex action?
- | | |
|---------------------------------|--------------------------|
| A. Eating food | ☐ |
| B. Screaming after a knee jerk | |
| C. Riding a bicycle | |
| D. Salivating on smelling food. | |
15. Which one of the following pair of activities consists of the correct responses to cold in a mammal?
- | | |
|--|--------------------------|
| A. Increased blood flow to skin surface, hair lying flat | ☐ |
| B. Vasoconstriction, hair standing upright | |
| C. Increased sweating, hair standing upright | |
| D. Panting and salivating | |
16. Which part of the heart receives deoxygenated blood from the body?
- | | | |
|--------------------|-------------------|--------------------------|
| A. Right ventricle | C. Right atrium | ☐ |
| B. Left atrium | D. Left ventricle | |

17. Where does pollination take place in a flower?

- A. In the stigma
- B. In the ovary

- C. On the stigma
- D. In the ovule

☐

18. The general effect of feathers on a bird during flight is to?

- A. Capture wind
- B. Reduce density

- C. Increase weight
- D. Increase density

☐

19. The following are characteristics of an insect: Segmented body, exoskeleton and jointed body. The characteristics specify the insect's

- A. class
- B. phylum

- C. order
- D. genus

☐

20. Which one of the following animal cells lacks a nucleus?

- A. Sperm cell
- B. Nerve cell

- C. Red blood cell
- D. White blood cell

☐

21. During the life cycle of an insect, the purpose of moulting at some stages is to allow

- A. it to move
- B. it to take in food
- C. it to increase in size
- D. the cuticle to harden

☐

22. Using a microscope, an animal cell was seen to have invisible chromosomes and a reformed nuclear membrane. This cell is likely to be at?

- A. anaphase
- B. telophase

- C. metaphase
- D. prophase

☐

23. Which one of the following is a non-renewable natural resource?

- A. Farm crops
- B. Minerals
- C. Forests
- D. Wild life

☐

24. Which one of the following organisms is a tertiary consumer in a food chain?

- A. Grass hopper
- B. Kite

- C. Chicken
- D. Grass

☐

25. Removal of the ring of bark from a tree interferes with the movement of?

- A. Mineral salts to leaves
- B. Food to leaves

- C. Food to roots
- D. Water to the soil

26. To which bone of the arm is the biceps attached?

- A. Ulna
- B. Radius

- C. Humerous
- D. Clavicle

27. Which body organ is responsible for urea formation in a mammal?

- A. Kidney
- B. Liver

- C. Bladder
- D. Gall bladder

28. A student conducted an experiment where he placed a plant in a bell jar and enclosed it in a black polythene paper for six hours under sun light. What process is being investigated?

- A. Photosynthesis
- B. Transpiration

- C. Germination
- D. Respiration

29. The table below shows a group of mammals with their corresponding masses.

Mammal	Body mass (kg)
Mouse	0.02
elephant	19000
Goat	16
Cow	150

Which one of the above mammals is likely to consume the lowest amount of food?

- A. Mouse
- B. Elephant

- C. Cow
- D. Goat

30. A vertebra with short neural spine, vertebrarterial canals is referred to as

- A. cervicle vertebra
- B. thoracic vertebra

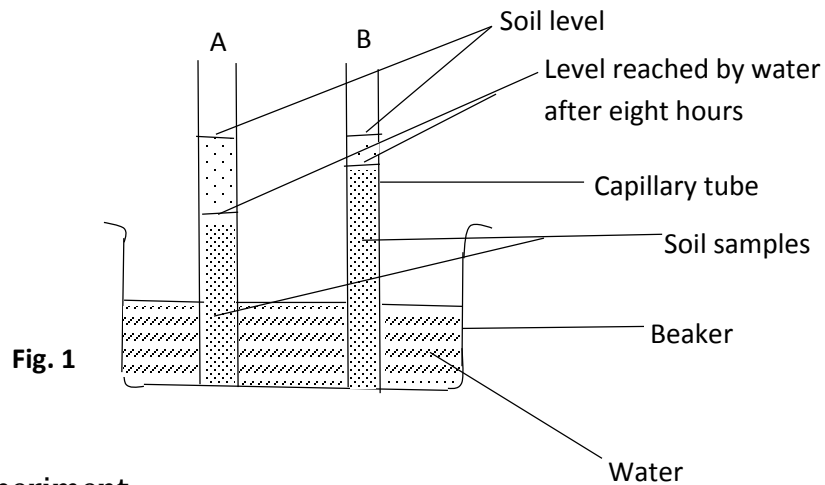
- C. lumbar vertebra
- D. sacral vertebra

Turn over

SECTION B: (40 MARKS)

Answer all questions in the spaces provided.

31. A student conducted an experiment as shown in figure 1 using soil samples **A** and **B**, and the experiment was left to settle for eight hours. Later, the results were recorded as in table 1.



Results of the experiment

Time (hours)	Height reached by water (cm) after 8 hours	
	Sample A	Sample B
0	0	0
0.5	15	5
1.0	25	15
2.0	28	32
4.0	30	44
6.0	30	46
8.0	30	46

Table 1

- (a) Suggest the aim of the experiment. (01 mark)

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- (b) Using the same axes represent the above information on the graph. (08 marks)

(c) Describe the shape of the graph. (05 marks)

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(d) Explain the shape of the graph. (05 marks)

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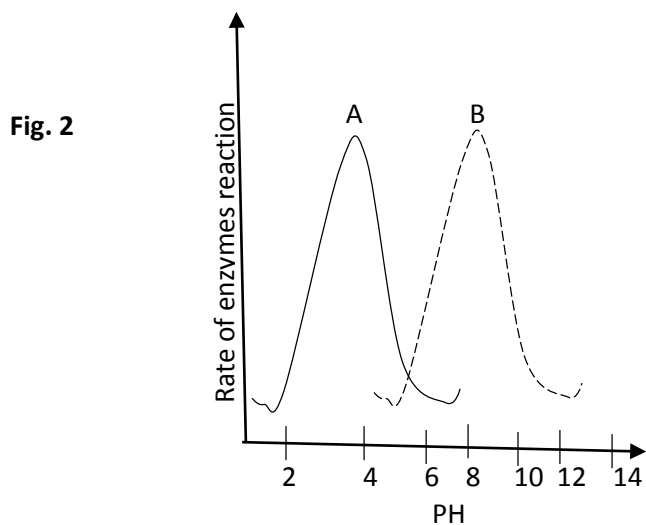
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(e) Suggest the identity of the soil samples **A** and **B**. (01 mark)

A.

B.

32. Fig 2 below shows the action of enzymes A and B in different pH media.



(i) Identify giving reasons enzymes **A** and **B**. (04 marks)

Enzymes	Identity	Reasons
A		
B		

(ii) Name the organ of the alimentary canal of a man where each enzyme **A** and **B** are found. (02 marks)

Enzyme **A**

Enzyme **B**

(iii) Suggest the food acted upon by each enzymes **A** and **B** and state the end product. (04 marks)

Enzyme	Food acted upon	End product
A		
B		

33. The information below was obtained in an ecological study in the prison farmland:

- Eagles feed on rats, snakes, lizards and toads.
- Rats, lizards and toads are eaten by snakes.
- Toads feed on grass hoppers and caterpillars.
- Grass is eaten by rats, grass hoppers and caterpillars.
- Lizards feed on grass hoppers and caterpillars.

(a) Represent the information in form of a food web. (06 marks)

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(b) From your food web, identify;

(i) two primary consumers. (01 mark)

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(ii) the topmost predator. (01 mark)

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(c) Explain how light can lead to a decrease in the population of lizards. (02 marks)

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SECTION C

*Answer **two** questions from this section*

34. (a) Define sexual and a sexual reproduction. (02 marks)

(b) What are the advantages and disadvantages of vegetative propagation? (13 marks)

35. Explain how the body maintains a constant body temperature during extreme temperatures. (15 marks)

36. (a) Define **complete metamorphosis**. (02 marks)

(b) Describe the life cycle of a housefly. (10 marks)

(c) How do we control the diseases caused by a housefly in a homestead? (03 marks)

37. Describe the role performed by the kidney nephron in the process of excretion in a mammal. (Drawing **not** required). (15 marks)

END