

FOCUS A365

Another Manyamfranchise.Com Evaluation Test

NAMECLASS.... ADM NO..... C/NO.....SIGN.....

DATE DONE.....
INVIGILATOR.....
DATE RETURNED.....

231/1 BIOLOGY

FORM 4

FEBRUARY SERIES TERM 1 2019

2 Hours

INSTRUCTIONS TO THE CANDIDATES:-

- Write your name, class and admission number in the spaces provided.
- Answer *all* the questions in the spaces provided.
- All working **must** be clearly shown where necessary.
- Wrong spellings of biological terminologies are penalized.

For Examiner's Use Only

QUESTIONS	MAXIMUM SCORE	CANDIDATE SCORE
1-28	80	

1. State the most suitable biological tool for collecting the following organisms:

a) A moth from a coffee farm. (1 mark)

b) Ants from a crack in a wooden table. (1 mark)

2. Define active transport

3. Which cell organelle is responsible for cell division in plants? (1 mark)

4. Define the following terms

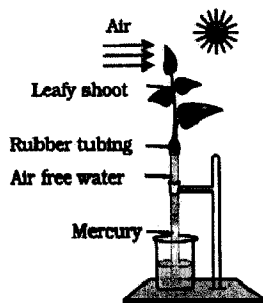
i. Evolution (1 mark)

ii. Homologous structures (1 mark)

iii. Analogous structures (1 mark)

5. What is double fertilization in flowering plants? (2 marks)

6. State two physiological changes that occur in human body when internal temperature tends to drop below normal. (2 marks)



7. Above is a setup used to investigate a certain process in plants.

.....
.....
11. (a) What is an allele? (1 mark)

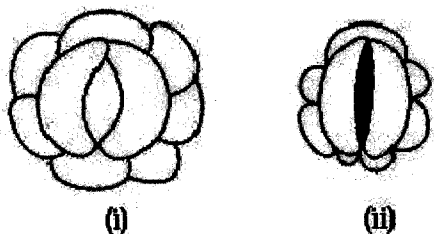
.....
.....
(b) Part of a nucleic acid molecule was found to have the following base sequence.

G-T-C-A-U-G-T

i. Identify the type of nucleic acid from which the portion was obtained from. (1 mark)

.....
.....
ii. Give a reason for your answer above. (1 mark)

.....
.....
12. Observe the diagram below answer the question after.



Which of the two cells shows a higher water content? (1 mark)

.....
.....
Explain (3mks)

.....
.....
13. Below is the dental formula of a mammal.

$i0/3 \ c0/0 \ pm3/3 \ m \ 3/3$

a. What is the total number of teeth? (1 mark)

...b. (i) What is the mode of feeding in the mammal? (1 mark)

.....
.....
(ii) Give **one** reason for your answer above. (1 mark)

.....
.....
14. List down two main functions of the placenta in mammals. (2 marks)

15. Name three classes in Phylum chordata that have a double circulatory system.(3 mks)

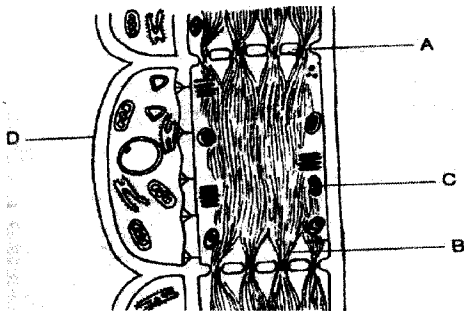
.....
.....
.....

16. (a) What is seed viability? (1 mark)

.....

(b) Name three factors that reduce seed viability. (3 marks)

.....
.....
.....



17. The diagram above shows the structure of phloem tissue.

a. Name the part labelled B. (1 mark)

.....

b. State two adaptations of the tissue above to its functions. (2 marks)

.....
.....
.....

18. (a) (i) What is a population? (1 mark)

.....

(ii) Give two reasons why human population increase in time and in space. (2 marks)

.....
.....
.....
.....
.....
.....
(b) (i) Name the type of association exhibited by lichens. (1 mark)

.....
.....
.....
.....
.....
.....
(ii) Define the association you named in (c) (i) above. (2marks)

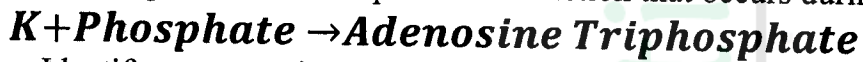
.....
.....
19. a) What is the function of the following structures?
i) Spiracles. (1 mark)

.....
.....
.....
.....
.....
.....
ii) Tracheoles. (1 mark)

.....
.....
.....
.....
.....
.....
b) Name the substance that strengthen the trachea in insects. (1 mark)

.....
.....
.....
.....
.....
.....
20. Name the two body parts of members of class Arachnida. (2marks)

.....
.....
.....
.....
.....
.....
21. The equation below represents a reaction that occurs during cell respiration.

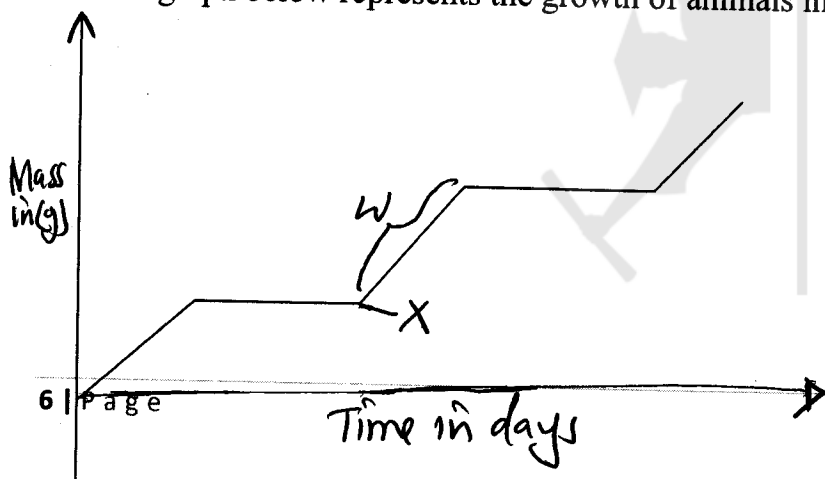


.....
.....
.....
.....
.....
.....
a. Identify compound K. (1 mark)

.....
.....
.....
.....
.....
.....
b. State two differences between K and Adenosine Triphosphate. (2 marks)

.....
.....
.....
.....
.....
.....
c. State the organelle responsible for respiration of energy in a muscle cell (1 mark)

.....
.....
.....
.....
.....
.....
22. The graph below represents the growth of animals in a certain phylum



Time in days

(a) Name the type of growth pattern shown on the graph. (1 mark)

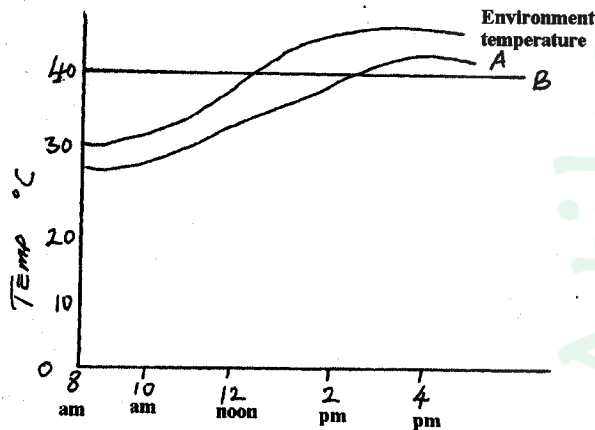
(b) Identify the process represented by X. (1 mark)

(c) Name the hormone responsible for the process in (b) above. (1 mark)

23. Name **three** types of cells that carry out photosynthesis. (3 marks)

24. Name three biotic factors of an ecosystem (3 marks)

25. The body temperatures of two animals A and B varied as below with environmental temperature



a) Which of the animals is;

i) Endothermic

ii) Ectothermic

b) With a reason, state which of the animals is likely to be widely distributed. (2 marks)

26. . Pure breeds of pink-flowered and yellow-flowered plants were crossed. The resulting F₁ generation were selfed producing F₂ in the ratio 3:1 for pink and yellow flowers respectively.

Work out the genotypic ratio of F₂. Let R represent the gene for Pink flowered plants. Show your working. (5 marks)

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

27.State two limitations of fossils as an evidence of evolution. (2mks)

.....

.....

28. Name two strengthening tissues in plants. (2mks)

.....

.....

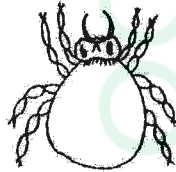
(ii) State two functions of part T

(2 marks)

.....
.....

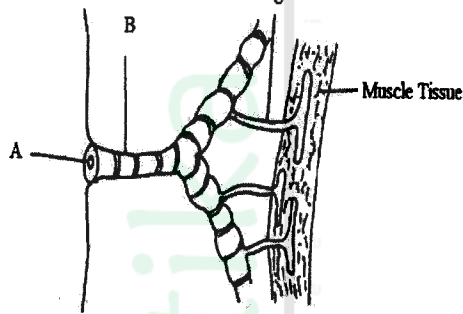
(b) During a practical activity, Form Three students of Butere Boys collected a specimen whose drawing is shown below during a class activity. State the phylum and class that the organism belongs giving a reason for each case based on observable features only

(4 marks)



Phylum.....
Reason.....
Class.....
Reason.....

2. The diagram below shows a structure found in insects. Study it carefully to answer the questions that follow.



(a) Name the parts labeled A and B

(2mks)

.....
.....

(b) State two ways in which part C is adapted to its function.

(2 marks)

.....
.....
.....

(c) Give a brief explanation to the following observations.

(i) Fish dies when taken out of water after sometime

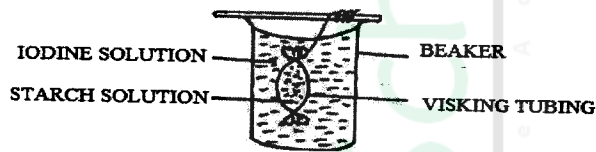
(2marks)

.....
.....
.....

(ii) The danger associated with sleeping in a poorly ventilated room with a charcoal jiko.(2mks)

.....
.....
.....
.....

4. The following set up was used to investigate a physiological process in life.



(i) Name the physiological process that was being investigated.

(1mark)

.....
.....

(ii) What is the representative of the visking tubing in life?

(1 mark)

(a) (i) State the observation that would be made in the visking tubing after the experiment.(1 marks)

(b)

(ii) Explain why similar results were not obtained inside the beaker

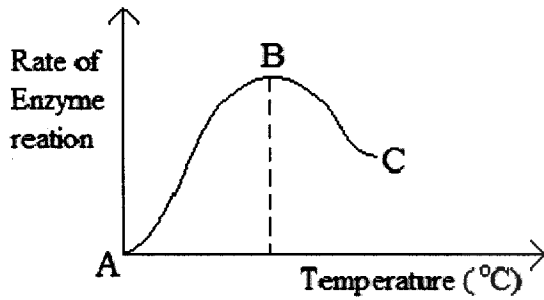
(2 marks)

.....
.....
.....
.....

a. What does the setup demonstrate? (1 mark)

b. Explain what will happen to the level of water if a blower is placed close to the setup? (3 marks)

8 The graph below shows action of heat on enzyme reaction.



a. What is the effect of temperature on the rate of enzyme reaction? (2 marks)

b. State the relationship between temperature and enzyme activity. (2marks)

9. State three areas where genetics can be applied (3 mark)

10. What is the role of corpus luteum in:
i) Menstrual cycle (2 marks)

ii) Early pregnancy (2 marks)