

NAME.....ADMNO.....

STREAM.....NAME OF SCHOOL.....

DATE.....SIGN.....

**GIDEONS ELITE BOYS CENTRE OF EXCELLENCE
DECEMBER SELF-ASSESSMENT EXAMINATIONS
FORM THREE**

BIOLOGY

FORM THREE

Time: 2½ Hours

INSTRUCTIONS

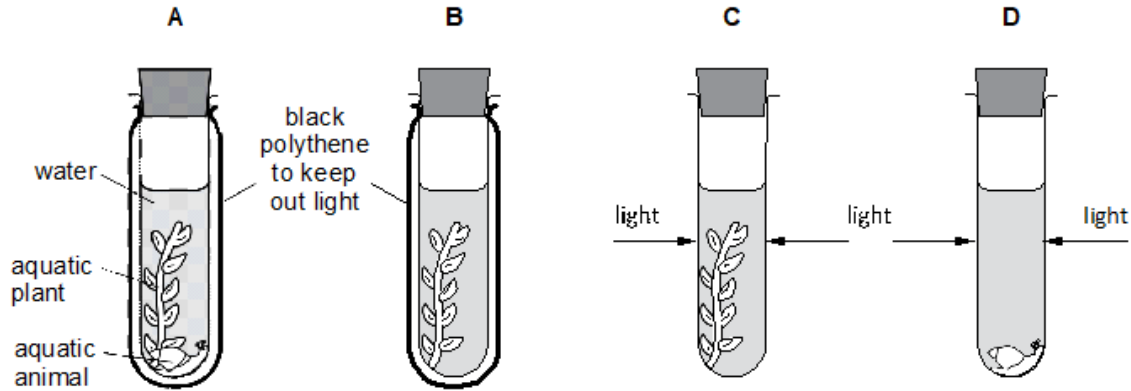
- All Questions are Compulsory
- Write your Answers in the Spaces Provided
- Wrong Spelling of Technical Terms shall be Penalized

| Max Score | Student's Score |
|------------------|------------------------|
| 80 | |

1. Name the components of blood that are absent in the tissue fluid. (2marks)

.....
.....

2. The apparatus shown was used in an experiment. The carbon (IV) oxide content of the water in each test-tube was measured at the start of the experiment and again three hours later.



(i) In which test-tube will the carbon (IV) Oxide concentration decrease? (1 Mark)

.....

(ii) Account for your answer in 2 (i) above. (2 Marks)

.....
.....

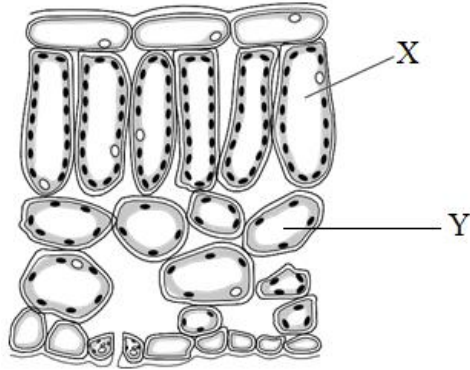
3. (i) Name the association between leguminous plant and rhizobium bacteria. (1mark)

.....

(ii) State the biological significance of the association named in 3(i) above in the environment.

..... (1 Mark)

4. The diagram shows a cross-section of part of a leaf.



- (i) Name the cell labelled X. (1 Mark)

.....

- (ii) Give **two** ways in which cell X and cell Y differ structurally. (2 Marks)

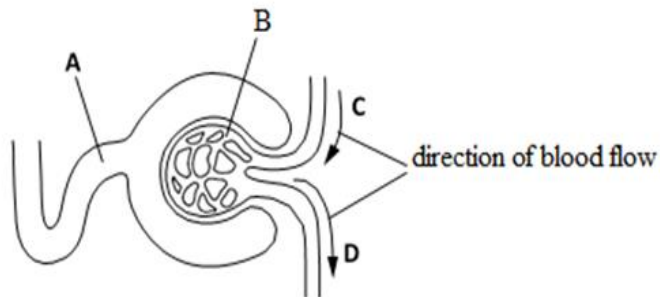
.....

.....

5. A certain solution was boiled in a clean test tube containing equal amount of Benedict's solution for three minutes. The color turned orange. Suggest the food material likely to be present. (1 mark)

.....

6. The diagram shows the first part of a kidney nephron and its blood supply. During filtration, protein molecules do **not** pass through the wall of the glomerulus.



- (i) Give a reason for the absence of protein molecules in part A. (1 Mark)

.....

(ii) Mention two factors that encourage high pressure at part B. (2 Marks)

.....
.....

7. The diagram below shows a fruit of a certain plant.



(a) (i) Name the likely agent of dispersal. (1mark)

.....

(ii) Give a reason for your answer in 7(i) above. (1 Mark)

.....

(iii) Label any two parts on the diagram. (2 Marks)

8. State functions of the following organelles.

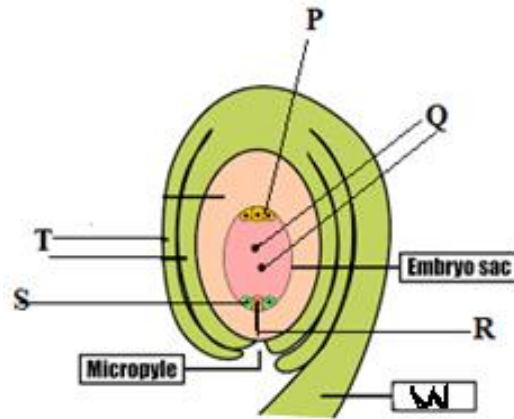
(i) Centrioles (1 Mark)

.....
.....

(ii) Golgi bodies (1 Mark)

.....
.....

9. The diagram below represents a mature embryo sac. Study it and answer the questions below.



(i) Identify the parts labeled P, W and S. (3 Marks)

P.....

W.....

S.....

(ii) What does part labeled T, R and Q change to after fertilization. (3 Marks)

T

R

Q

10. Name the specific structure where the following biological processes take place;

(i) Photolysis in the chloroplast. (1 Mark)

.....

(ii) Carbon (IV) oxide fixation in the chloroplast. (1 Mark)

.....

(iii) Glycolysis in cell respiration (1 Mark)

.....

11. The main surfaces for gaseous exchange are known to have a large surface area. Identify the features that enhance the surface area in the following respiratory organs.

(i) The gill (1 Mark)

.....

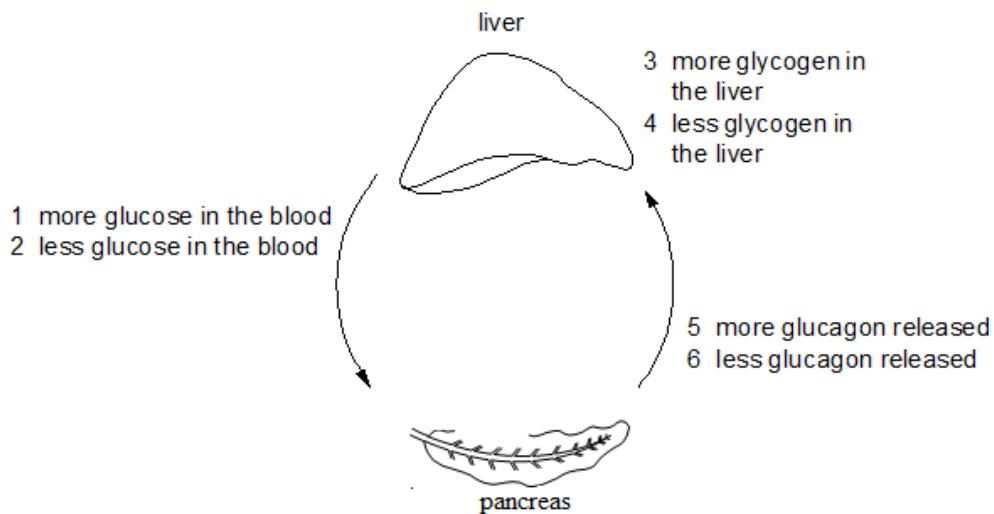
(ii) Mammalian lung (1 Mark)

.....

(iii) Tracheal system in insects. (1 Mark)

.....

12. The diagram shows part of the mechanism that controls blood sugar concentration.



(a) A person does one hour of exercise. Starting with the pancreas, what is the sequence of events in which the hormone glucagon is involved. (1 Mark)

.....

(b) State the expected changes in the following at the time of vigorous exercise.

(i) Superficial arteries. (1 Mark)

.....

(ii) Amount of urine formed. (1 Mark)

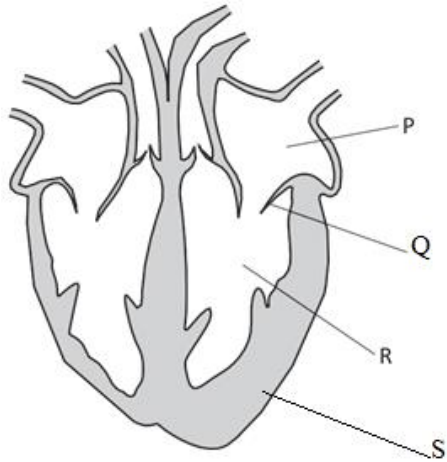
.....

(c) Explain the answers given in 12 (b) above.

(2 Marks)

.....
.....

13. The diagram shows a cross-section through the heart of a mammal.



(i) Name the parts labeled P and R.

(1 Mark)

P

R

(ii) Give the function of the part labeled Q.

(2 Marks)

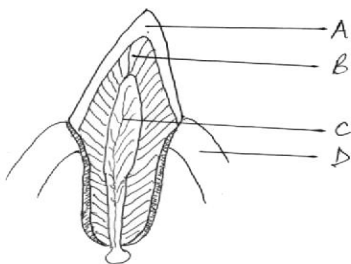
.....
.....

(iii) Account for the large size of the part labeled S.

(2 Marks)

.....
.....

14. The diagram below represents internal structure of a mammalian tooth.



(i) Name the parts labeled B and D

(2 Marks)

B

D

(ii) Name the mineral that takes part in the formation part A. (1 Mark)

.....

(iii) State two adaptations of section C for its functions. (2 Marks)

.....
.....

15. Suggest the most suitable population estimation method of grasshoppers in your school compound.

(1 Mark)

.....

16. State any two theories that explain the mechanism of opening and closing of stomata. (2Marks)

.....

17. (i) Name the secretion from sebaceous gland of mammals. (1 Mark)

.....

(ii) Give two functions of the secretion named in 17(i) above. (1 Mark)

.....
.....

18. Explain the homeostatic function of sweat in mammals. (2 Mark)

.....
.....

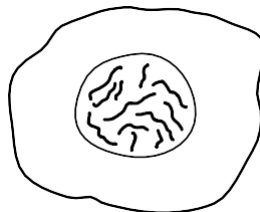
19. Give the function of vascular bundles. (2 Marks)

.....
.....

20. The scientific name of organism that causes malaria is **PLASMODIUM OVALE**. How would a student write the name in her exercise book correctly? (2marks)

21. In which part of the alimentary canal does ingestion take place. (1 Mark)

22. The diagram shows the cell of an organism. The nucleus contains 12 chromosomes.



(i) After this cell divides by meiosis, how many chromosomes would be present in one of the daughter cells?

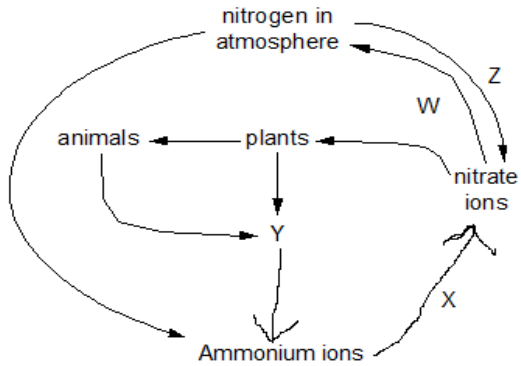
..... (1 Mark)

(ii) List two events that take place in Anaphase I.

(2 Marks)

.....
.....

23. The diagram shows part of the nitrogen cycle.



(i) Name the processes W, X and Z.

(3 Marks)

W

X

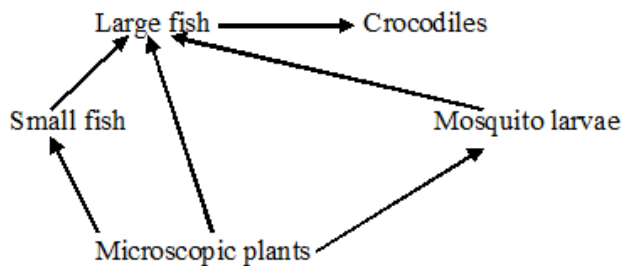
Z

(ii) Which two organisms make process Y successful.

(2 Marks)

.....
.....

24. The following diagram shows a feeding relationship in an ecosystem



(a) From the diagram, write down a food chain with crocodile as secondary consumer.

(1 Mark)

(b) State two short term effects of removing large fish from the ecosystem. (2 Marks)

.....
.....

(c) (i) Which of the above organism would you expect to have the highest biomass? (1 Mark)

.....

(ii) Give reason for your answer in 24(c) (i) above. (1 Mark)

.....

25. A student drew a 3cm long diagram of a plant flower. If the actual length of the flower was 6cm, calculate the magnification of drawing made by the student. Show your working. (2marks)

26. State the economic importance of the following excretory products in plants (2 Marks)

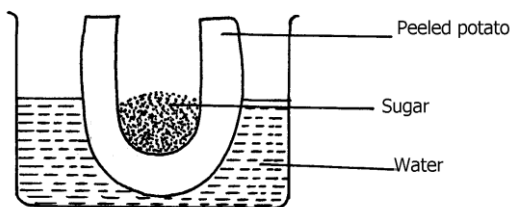
Nicotine

.....

Quinine

.....

27. An experiment was set-up as shown below and left for one hour



(i) State the expected result at the end of one hour. (2 Marks)

.....

(ii) Explain the observations made in this experiment. (3 Marks)

.....

.....