**Name………………………………………………………………… ADM NO…………………**

**SIGN ……….…… date……….…**

**231/1**

**BIOLOGY**

**FORM 4**

**PAPER 1**

**2 Hours**

**END OF TERM 2 EXAMINATION**

**INSTRUCTIONS TO CANDIDATES**

1. Write your name and admission Number in the spaces provided above.
2. Sign and write date of examination in the spaces provided above.
3. Answer **ALL** questions in the spaces provided.
4. All workings **must** be clearly shown where necessary.

1.Name three sites of gaseous exchange in frogs. (3mks)

2.a)What is organic evolution (1mk)

 b) Distinguish between divergent and convergent evolution giving example in each case. (4mk)

3.State three applications of plant hormones in agriculture (3 marks)

4 (a) Give an equation to show that respiration involves oxidation of glucose (1mk)

 (b) How is an energy rich molecule rebuilt after muscle contraction (2mks)

(c)apart from energy, name another end product of anaerobic respiration in animals(1mks)

5. Give the functions of the following ecological instruments (2mks)

 (a) Seechi disc

 (b) Photographic light meter

6.a) Which genetic disorder is caused by lack of a gene which causes production of Melanin. (1mk)

7. List down **two** phenotypic characteristics that have been selected for the production of strains suitable for modern agricultural purposes (2mks)

8.A plant was observed to have parallel venation and fibrous root system. Name.

(i) Subdivision of this plant. (1 mk)

(ii) Class to which the plant belongs. (1 mk)

9.Name the organism that;

(a) (i) causes malaria 1 mark)

(ii) Transmits malaria 1 mark)

(b) State two control measures for malaria (2 marks)

10. Explain two milestones in the evolution of man that have made him the most dominant species on earth.

(2marks)

11. 50 black mice and 50 white mice were released into an area inhibited by a pair of owls. After four months 38 of the black mice and 9 of the white mice were recaptured.

 a) How this observation would be explained. (2 marks)

b) Name the theory of evolution that support the results in (a) above. (1mark)

 c) Name one vestigial structures in man. (1 marks)

12.State the functions of the following apparatus.

1. Bait trap (1mk)

(ii) Pooter (1mk)

13.a) Define the term ‘parthenocarpy’. (1mk)

;

 (b)Name **two** plant growth hormones that promote parthenocarpy. (2mks)

14.What is the biological importance of the larval stage during metamorphosis (2mks)

;

15.a) State **one** structural and one functional difference between motor and sensory neurone. (2mks)

Structural

Functional

b)What name is given to the gap between the sensory neurone and intermediate

neurones. (1mk)

 (c) Name the transmitter substance found in the gap named in (b) above. (1mk)

16.Name the type of response shown by: (2mks)

a)Sperms when they swim towards ovum.

(b) Euglena when they swim towards the source of light.

17.Give **two** reasons why the pressure of blood is greater in the arteries than in the veins in mammals. (2 marks)

18.a) What is the importance of heartbeat in blood circulation? (1mk)

b) If the nerve supply to the heart of a mammal is severed, the rhythmic heart movement will still go on and the heart continues to beat. Explain this observation. (1mk)

19. What happens when respiration exceeds photosynthesis in the guard cells of terrestrial plants? (3 mks)

20.a) Name the hard body covering found in organisms of the phylum arthropoda. (1mk)

b)Give **two** uses of the structure mentioned in (a) above. (2mks)

21.Describe how the following conditions promotes cross pollination

1. heterostyly ( 1 mark)
2. self sterility ( 1 mark)

22.Distinguish between plasmolysis and deplasmolysis as used in cell physiology( 3 marks)

23.Explain how surface area to volume ratio affect the rate of diffusion in living organisms ( 2 marks)

24.State two differences between the product of mitotic division and those meiotic division ( 2 marks)

|  |  |
| --- | --- |
| mitosis | meiosis |
|  |  |

25. Explain why fresh water aquatic animals excrete nitrogenous waste inform of a ammonia ( 3 marks)

26.Alongside alimentary canal are enzyme that digest food into simpler absorbable forms. study the illustration below to answer questions that follows

 enzyme K enzyme L

protein peptide aminoacids

1. Identify enzyme K and its site of action in alimentary canal (2 marks)

|  |  |
| --- | --- |
| Enzyme  | Site of action  |
|  |  |
|  |  |

1. Identify enzyme L and state its pH under which it works best ( 2 marks)

|  |  |
| --- | --- |
| Enzyme  | pH |
|  |  |

27.(a) What makes young herbaceous plants remain upright (2 marks)

 (b) Why should herbaceous plant remain upright ( 2marks)

28.(a) Name the main excretory product stored in the coffee berries (1mk)

b) What is the economic use of the products named in a (a) above ( 1 mark)

29.(a) state one advantages of asexual reproduction (1mk)

30.Define the term photolysis (1 marks)

31.Outline one functions of the femur bone (2 marks)