**MARKING SCHEME**

**BIOLOGY – 231/1**

**ARISE AND SHINE**

**TRIAL 1 EXAMINATIONMARCH/APRIL 2023**

1. (a). Taxonomy

(b) Microbiology;

2. (a). Pteridophyta;

(b). Presence of Sori;

Presence of rhizomes;

Presence of fronds;

3. Diameter of the field of view = 4mm

 In micrometers = 4 x 1000 um = 4000 um;

No of cells = 20

 Size of each cell = diameter of field of view

 No of cells

 = 4000

 20;

 = 200um

4. – Formation of spindle fibres during cell division;

 - Formation of cilia and flagella;

5. U – water

V – Oxygen

W – Hydrogen (ions)

6. (a) (i) Beriberi

 (ii) Pellegra

 (iii) Pernicious anaemia

(b). Increase/Ada bulk of the food enhancing peristalsis/Firm grip along lining of the

 Alimentary canal.

|  |  |
| --- | --- |
| **Osmosis** | **Diffusion** |
| * Water moves along the concentration gradient
* Process utilize no energy
 | Molecules/particles move against concentration gradient Process utilize energy; |

8. (a). Hypertonic solution;

(b). Osmosis;

(c). - Phospholipid;

- Protein;

9. (a) Dicotyledonae;

(b). centrally placed star – shaped xylem with phloem (alternating) between the arms of the

xylem.

 (b) is tied to (a)

(c). - Numerous/Elongated to increase the surface for absorption of water/mineral

 Salt/both;

- Thin walled for faster absorption of water/ mineral salts/both;

- Numerous mitochondria to provide energy for absorption of mineral salts

Mark first 3

10.

|  |  |  |
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| **S.no** | **Arteries** | **Veins** |
| (i) | Walls are thick, muscular with more elastic fibres | Walls are thin’ less muscular with less elastic fibres; |
| (ii) | Have no valves except at the base of large arteries | Have valves; |
| (iii) | Have narrow lumen | Have wider lumen; |

11. (a). Stable/does not dissociate; reducing oxygen carrying capacity of Red blood cells;

causing suffocation/ (OWTTE)

(b). -Cuticle;

- Lenticels;

- Stomata;

- Pneumatoprores/Breathing roots;

- Aerenchyma tissue;

(Mark 1st 2)

12. (i) Keep the trachea open;

(ii) Dissolve respiratory gases for faster diffusion;

13. (a) RQ = Volume of CO2 Produced

Volume of oxygen consumed

= 102;

145

= 0.7;

(b). Fats

14. (a). A mouse has large surface area to volume ratio; loses more energy/heat; hence the

need to compensate for the loss;

Max marks = 2

(b). Insufficient oxygen/Anaerobic condition;

15. (a). Oxygen;

(b). More gas/oxygen produced at PH 9.0 than PH 4.0, PH 9.0 is optimum/suitable; for

the activity of enzyme catalase

 (c). - Blood cells/Acc Red blood cells/white blood cells/platelets;

- Plasma proteins;

16. (a). (Branch of biology that deals with the) study of insects

(b). Ability of an organism to detect and respond to changes in the environment;

17. - Skin Colour/Pigmentation

- Body weight

- Span of the hand

- Height

18. (a).(i) Salmonellatyphi

(ii) StreptococcusPneumoniae

 (b). - Proper disposal of feaces/urine in latrines;

- Drinking water should be boiled/treated;

- People should wear protective shoes/water proof shoes/gumboots when waling in

water in infested with snails with molluscicides

 First 3 correct 3 x 1 = 3mks

19. - Capture the organisms using appropriate means;

- Mark with water proof paints;

- count the number and release;

- capture again after 48 hours and use the formular to estimate the population;

20. - Beneficial characteristics are retained

- Organisms mature faster;

-does not depend on population/fertilization/Fruit and seed dispersal;

- New plants obtain nourishment from their parent/hence can survive temporarily

 during unsuitable environmental condition;

21. (a). Prophase 1; (Rej wrong spelling/prophase alone)

(b). Recombination of genes; leading to variation;

22. (i). Apical meristems/Root shoot tips

 (ii). Cambium

23. - Surface area of leaves

- Height/Length;

- Dry weight/mass;

24. - Bring organism with similar characteristics together and separate them from these

 with different features

- Place the organisms into their correct group for reference;

- Arrange information about living organisms in an orderly manner;

- Help understand evolutionary relationships between different organisms;

25. (i). Ovules;

 (ii). Axile;