**MERU CENTRAL PP1( 2020 ) marking scheme**

1. (a) Intermittent growth curve;

 (b) (i) Growth;

 (ii) Ecdysone/ mounting hormone;

 (c) Results in fertilization by conveying the male gametes to the female gamete; rej. It carries/transport/medium

2. (a) Neutralise **excess** acid (Hcl); rej. Without excess.

 (b) X – Condensation;

 R – Sucrase/ invertase;

3 i) Anaphase

.ii) A – Chromatid; rej. chromatids

 C – Spindles;

4.

Promote cell division/ cell elongation;

initiates fruit formation without fertilization/ parthenocarpy;

 formation of side branches of stem;

inhibits growth of adventitious roots;

promotes dormancy in buds;

 Activates enzymes during germination; (4mks)

5.(a) – (Weak) carbonic acid ;

 Acc. bicarbonate ions/hydrogen carbonates

- carbamino haemoglobin; rej. Carboxy haemoglobin/ carbomonal heamoglobin

 (b) Carbonic anhydrase;

6. (a) Maintains a **steep concentration gradient** across the respiratory surface; ensuring maximum extraction of oxygen from water to the blood; rej. Without **steep concentration gradient** (2mks)

 (b) Thin epithelium for faster/ rapid diffusion of gases; rej. Without fast/ rapid

 Have tracheole fluid/ moist surface to dissolve gases in solution before diffusing;

 Highly branched to increase surface area for gaseous exchange; (mark first two)

 Rej. Highly vascularised

 Thin wall for epithelium

7. (a) Adenosine diphosphate .rej. ADP

 (b)

|  |  |
| --- | --- |
| K | ATP |
| has two phosphate molecules | has three phosphate molecules |
| has less stored energy | has more stored energy |

Use a table to differenciate

 (c) Mitochondrion rej; Mitochondria

8. Absorb lead from car exhaust fuses and pass it to animals and humans through the food chain

9. Low altitude areas have favourable temperature for working of enzymes; faster metabolic process leading to faster growth; high concentration of Carbon (IV) oxide hence high rate of photosynthesis; High Carbon (IV) oxideconcentration in low altitude leads to increased rate of respiration to generate energy for faster growth;

10. Resistance to diseases.

 Early maturity

 Adaptations to local conditions

 High yields

 Increased length of production

11. (i) Old sight/ prebyopia; (1mk)

 (ii) Cataract; (1mk)

 (iii) Myopia/ short sightedness; (1mk)

12 (a)  i.e.

 (b) To create a high propulsive **force**/ **thrust** rej without force/thrust

13.

|  |  |
| --- | --- |
| **Endocrine system**  | **Nervous system** |
| Uses hormones to relay impulses | Uses electrical charges caused by chemical |
| Hormones transmitted through the blood | Impulse transmitted through nerve cells  |
| Hormones reach all parts of the body | Impulse transmitted through nerve cells to specific parts of the body; |
| Effects are long lasting | Effects are rapid and short lived; |
| Responses usually slow | Responses usually fast; |

Use a table to differenciate

14. Struggle for existence is the environmental pressure on the population in order to survive;while survival for the fittest is advantageous variations an individual possesses to make it survive;

Must distinguish

15. (a) (i) B

 (ii) A

(b) B – because it can keep its temperature constant despite variations in the environment.

 1(a) and (b) are tied

16. Stimulates repair and healing of endometrium

* Stimulates production of Leutinising Homone. Rej LH
* Stimulates development of female secondary sexual characteristics

17.

* Thin cell walls
* Dense cytoplasm
* No vacuoles

18. 1a) Simple leaf……………………………. Go to 2

 1b) Compound leaf ……………………….. C

 2a) With parallel variation…………………. B

 2b) With network variation………………… A

b) Gramma rays

Mustard gas

19. (i) Substitution

 (ii) Deletion

20.Lack of bile salts; which emulsify fats;

21. **High auxin concentration** produced by terminal bud/ apical meristem, inhibits lateral buds growing into branches; removal of terminal bud/ apical bud lowers the concentration of auxins/ lowers the inhibition effect (hence sprouting of lateral buds; Rej without high concentration

22 a) - Its cells (vessels) have no transverse walls thereby forming a long hollow tube running

 from roots to leaves (through which water and mineral salts can easily be transported);

 - Have dead cells lacking nucleus and other cell contents (organelles) which might have

 otherwise hidered / restricted the movement of mineral salts and water from the soil

 through the roots and up the plant;

 - The cells are longitudinally joined to each other to enhance easy movement of water

 and mineral salts up the plant;

 - The cells have side walls coated with lignin deposits which prevent leakage of water

 and also strengthen the walls preventing them from collapsing;

 - The xylem vessels are narrow lumen to facilitate capillarity; Rej, without lumen ***OWWTTE***

 b) - The epidermis is one cell thick for faster/rapid movement of water and mineral salts

 into the plants body; Rej to reduce distance without rapid or faster

 - They are thin and flexible to easily penetrate through the soil particles.

 - The root hairs are many to increase the surface area for diffusion of material into the

 plant;

 - Have semi-permeable membrane for selective movement of materials into the plant;

 23. a) i) A group of organisms that can naturally/ freely interbreed to produce viable

 fertile young ones; (offspring) (1mk)

 ii) (A scientific system of double haming) naming organisms using the generic/

 genus and specific/ species names; Rej. without genus and species (1mk)

24. - Sodium pump mechanism in nervous system;

 - Reabsorption of useful materials in blood stream from tissue fluid/ kidney. Rej absoption

 - Excretion of waste products from body cells;

 - Absorption of digested food/ mineral salts/ vitamins from alimentary canal; Rej reabsorption

 - Reabsorption of glucose / (some) salts in the kidney/ by kidney tubules;

25.When biceps contract it pulls the fore arm and the arm bends; the triceps relaxes to bring about balanced movement; when triceps contract the biceps relaxes and the fore arm stretches/ extends; Rej. Arm lower/raise/fold