

FORM FOUR CLUSTER KCSE MODEL 3

BIOLOGY PAPER 1 ANSWERS

Enable living things to acquire and utilize nutrients; Underlined concepts must be there to score

2. Wipe; using a tissue paper moistened with ethanol;

3. - Selective reabsorption of glucose, amino acids, and mineral salts in the kidney tubules back to body cells during urine formation.

- Absorption of digested food from the ileum into the blood stream;

- Transmission of nerve impulses within the nerve cells by maintaining the balance of ions (sodium and potassium ions) on either side of the nerve of the nerve cells;

- Excretion of wastage products of metabolism from body;

4. Stomata allows entry of carbon (IV) oxide into the leaves (photosynthetic cells;

that is combined with water to form a simple carbohydrate);

5. (a) (i) Herbivorous; Reject herbivore

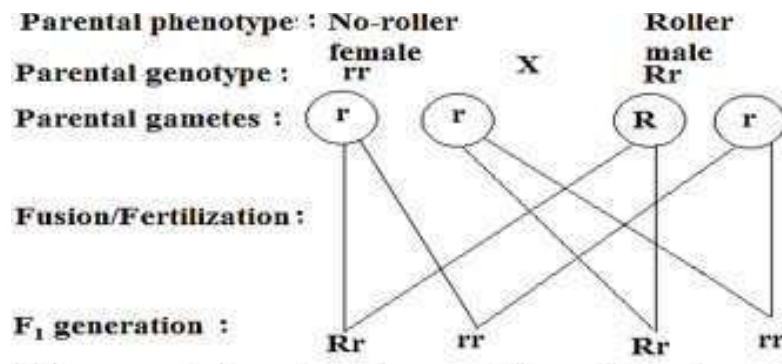
(ii) –Has diastema gap// lacks upper incisor;

(b) Dental formula

$$\begin{array}{cccc} 0 & 0 & 2 & 4 \\ i & c & pm & m \\ 4 & 0 & 2 & 4 \end{array}$$

6. Crossing

Let R represent the gene for tongue rolling And r be the gene for non-rolling



7. (a) Past material remains of ancestral form of organisms preserved in naturally occurring materials like resins and sedimentary millions of years;

(b) (i) Group D:

(ii) Group B;

8. X: Shoot tip bends towards unilateral light;

Y: Shoot tip grows upright without bending;

Z: Shoot tip bends towards unilateral light;

Reject shoot for shoot tip.

9. - Have intercalated disc;

- Are myogenic;

- Do not fatigue;

10. . - Tells little about features of organisms other than their relationships;

- It is only useful to small local communities but not of much use to scientists who have to communicate with one another all over the world;

- Distantly related organisms fell in the same group (taxon) hence resulting to confusion and chaos on identify of living organisms;

11. .Epicotyl: -Part of the embryonic stem above the attachment of the cotyledons.

Hypocotyl. -Part of the embryonic stem below the attachment of the cotyledons.

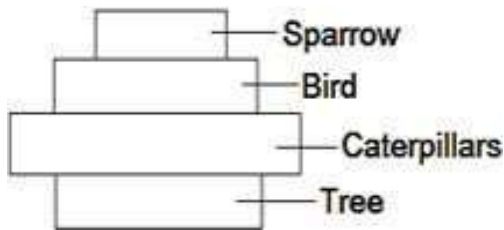
12. . (a) Monocarpous pistil;

(b) Axile; Reject axial

(c) Passion fruit; paw paw; (some) tomatoes; Accept any correct fruit

13. (a) *Tree → Caterpillars → Insect eating birds → Sparrow;*

(b) Pyramid of numbers;



14. . Prostate glands secrete an alkaline fluid that neutralizes the acidity in the vaginal canal due to vaginal secretions;

- Cowpers glands secrete an alkaline fluid that neutralizes the acidity in the urethra due to urine;

15. . (i) Binary fission; Reject fussion for fission.

(ii) Flagella;

16. . (a)(i) Tricuspid valve; Reject cuspid valve.

(ii) It has three valve flaps;

(b) The junction between the right atrium and the right ventricle; Reject atrium and ventricle alone

(c) Prevent backflow of blood from the right ventricle to the right atrium; when the left ventricle contracts;

17. . (a)- They are substrate specific;

- Reactions catalyzed by enzymes are reversible;

- Enzymes remained unchanged at the end of the reaction;

(b)- They are proteinous in nature;

- They have a very high turnover number;

18. (a) To show that germinating seeds respire using oxygen and produce carbon (IV) oxide;

(b) - Germinating seeds respire using oxygen in the flask and producing carbon (IV) oxide;

- The potassium hydroxide absorb the carbon

(IV) oxide produced hence creating a partial vacuum;

- The mercury rises up the tube (to occupy the partial vacuum);

19. -Stomata are found on the upper epidermis to allow efficient gaseous exchange;

-Have large aerenchyma tissues to store air for gaseous exchange;

-Cells of aerenchyma tissues have moist surfaces to dissolve the respiratory gases;

20. -Have starch grains;

-Have casparian strip; Accept suberin for casparian strip

21. (a) Gives rise to the cornified layer

(b) Protects the skin against harmful ultraviolet rays;

22. - Synthesis of proteins;

- Release of proteins into the endoplasmic reticula;

23. (a) (i) Collenchyma;

(ii). Component cells are cuboidal; with thick ribs of cellulose;

24. . Adaptive radiation;

Accept divergent evolution;

25. . (a)(i) Coniferales;

(ii) Presence of cones;

Presence of rolled leaves;

(b)- Female cone;

- Cone is laterally located;

- The cone is larger;

26. (a) To remove the epidermis and cuticle and expose the cortical cells whose thin cell walls are flexible and would allow flexibility for fitting into the bottle opening; Owing to;

(b) The concentration of the cell sap of the cortical cells was hypertonic to the water in the bottle. On contact with the water the cells drew in water by osmosis; swell and became turgid; increasing the size of the stem hence the tight fit;

27. (i) Slows down heart beat;

(ii) Speeds the heart beat;

28. - Secretes the pleural fluid that reduces friction thus enabling the lungs to move freely within the thoracic cavity during ventilation;

29. (i) Ethanol;

(ii) Carbon (IV) oxide;