

FORM FOUR CLUSTER KCSE MODEL9

BIOLOGY PAPER 1 ANSWERS

Answer all the questions

1.
 - Smaller than other cells;
 - Lack nuclear membrane / Prokaryotic;
 - Lack organelles/mitochondria/fewer organelles;
2. (a) Chloroplasts ; cell wall;
(b)
 - (i) Golgi bodies/Golgi apparatus/Golgi vessels;
 - (ii) -Packaging of glycoproteins/proteins and carbohydrates;
 - Secretion of glycoproteins;
 - Production of lysosomes;
3.
 - Have a lot of chloroplasts that contain chlorophyll that traps light;
 - Are long cylindrical cells
 - to increase surface area for packaging of chloroplasts;
 - Are closely packed to be numerous /many in a small space;
 - Found next to the upper epidermis
 - to trap maximum sunlightenergy;
4. (a)
 - Haemolysis; occurred.
 - The cytoplasm of distilled water and hence absorbed water; by osmosis;
 - The red blood cell swell/increase in size/weight; and bursted/Broke down;(b)
 - Root hair:-Absorption of mineral ions from the soil;
 - Phloem tissue;-Translocation of food materials;
5. Lactic acid accumulation ; leads to muscles fatigue and muscle cramps;
6. (i) The emergent of the present day living organisms from pre –existing ; forms over time ;
(ii) All vertebrate embryos are morphologically similar; during early development showing a common descent/ancestry;
(iii) -Appendix; coccyx/tail; Acc –Nictitang membrane;
7. (i) Capillaries;
(ii) -Thin/one epithelial cell thick –to ensure faster diffusion of substances in the tissue fluid;
-Numerous/many/widely spread to increase the surface area to reach all tissues;

-Smaller diameter compared to arteries or arterioles to create pressure for ultra -filtration;

8. (a) -Have little stored food in endosperms; Hence must germinate fast enough to make leaves for photosynthesis.

(b) Parthenocarpy;

9. (a) Myelin sheath

-Insulates the axon;

(b) Acetylcholine

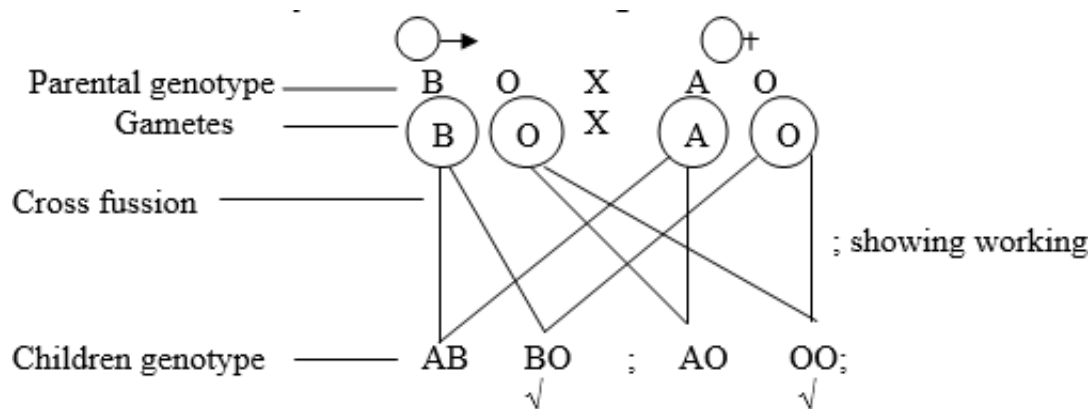
-Transmitter chemicals;

-Transmits impulses across a synapse;

10. -Ball and socket joint -allows movement in many directions /through 360°

-Hinge joint -allows movement only in one direction/through 180° .

- 11.



12. (a) Binary fission;

(b) Spore formation;

(c) Budding;

13. Stomata ;Lenticels ;Cuticle;

14. (a) *Green grass → Locust → Lizard → Snake → Eagle;*

(b)

(i) Green grass;

(ii) The energy they produce must sustain Green plants; and also be enough to sustain other organisms higher in trophic levels;

15. The left ventricle pumps blood to a longer distance/rest of the body than the right ventricle/to the lungs/to the lungs; and therefore must be more muscular to exert enough pressure/and also withstand the pressure;

16. (a) _____
 (b) -Presence of mammary glands;
 -Presence of hairs;
 -Presence of muscular diaphragm;
17. -Selectively semi- permeable to substances in and out of the cell;
 -Detects changes in its environment due to possession of electrical changes;
18. (a) Splits/Breaks water molecules into hydrogen ions (atoms) and oxygen gas;
 (b) -Palisade mesophyll; cells -Spongy mesophyll; cells
19. -Dead cells forming a long hollow tube running continuously from roots, stems to the leaves
 ;OWTTE
 -Deposition of lignin strengthen xylem and prevent collapsing; OWTTE
20. (i) Sori;acc –sorus
 (ii) Capsules;
 (iii) Sporangium/sporangia;
21. (a) Mycology;
 (b) Entomology;
22. (a) A period when the embryo in the seed has little physiological process going on but no Physical activity;
 (b)
 -Under developed embryo; chemical inhibitors;
 -Low concentration of Hormones;
 -Hard impermeable seed coat/testa;
 -Absence of certain light wavelengths;
 -Freezing/excessively higher temperature;
23. (a)
 (i) -Rib-cage;
 (ii) -Diaphragm;
 (b)
 -The balloons swell up/increase in size;
 -Air rushes in /enters;
 (c) When the string/diaphragm is pulled down, a particular vacuum is created in Bell jar/D or Thoracic cavity; forcing air in to cause the balloons to swell;

24.

DNA	RNA
-Has two strands	-Has one strand;
-Double helix	-Single strand;
-Has thymine base	-Has uracid (u) base instead;

25. (a) Relatively cooler/lower temperature; outside for sperm production/spermatogenesis;
(b) Production of the female hormones/oestrogen and/progesterone; that maintain pregnancy is taken over by the particles;
26. (a) Exoskeleton;
(b) Endoskeleton;
27. Due to mutation; to form mutant varieties/strains