FORM FOUR CLUSTER KCSE MODEL11

BIOLOGY PAPER 1 ANSWERS

Answer all the questions in the spaces provided.

1. a) Biochemistry; (1mk)

   b) Entomology; (1 mark)

2. a) Mitochondrion; rej mitochondria (1mk)

   b) Matrix; (1mk)

   c) Increases surface area for attachment of respiratory enzymes ; (1mk)

   Site where respiration occurs;

3. i) Continuous variation; (1mk)
   ii) Discontinuous variation; (1mk)

   iii) AA, AO; Rej one genotype. (1mk)

4. a (i) Carbon (IV) oxide; rej IV (iv) 2mks)

   (ii) Water;
   b. Deamination; (1 mark

5. i) Study of a single species within an ecosystem ; (1mk)

   ii)Specific locality where an organism lives; (1mk)

   iii) -Absence of cuticle to enhance /speed up gaseous exchange;
   -Stomata found only on the upper epidermis to allow efficient gaseous Exchange;
   -Presence of aerenchyma tissue /large air space to enable it to float / buoyant/storage of air;(1mk)
   (mark the first one)

6. a)Development of an ovary into a fruit without fertilization ; (1mk)

   b) Auxins / I AA;
   Gibberellins /Gibberellic acid; (first one) (1mk)

7. a)Gymnospermaphyta; (1 mark)

   b) Presence of needle -like leaves /show xerophytic characteristics; (any correct)

   -Produce naked seeds;/seeds not enclosed with an ovary wall;

   -Non flowering;

   -Xylem made up of (mainly) tracheids;

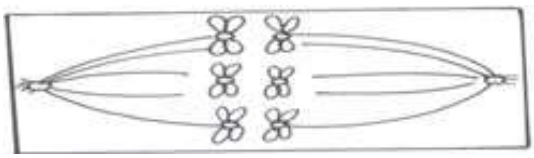
   -Phloem lack companion cells; Any 1st 2 (2mks)

8. Lemon juice contains ascorbic acid ;which decolorizes DCPIP ; (2mks)

9. a)Metaphase 1 ; Rej metaphase alone.

   Reason homologous chromosomes line up together at the equator; (1mk)

b)



10. a) Oxygen; (1 mark)

    b) Reutilized for respiration;

    (Excess) released to the atmosphere; (any one correct) (1mk

11. Thin for faster diffusion of gases;

    Moist to dissolve diffusing gases;

    Vascularised to transport gases; (3mks)

12. a) The visking tubing is semi-permeable and allows the passage of small glucose molecules into the beaker by diffusion; (1mk)

    b) i. Volume of liquid in the beaker decreased; (1mk)

    ii. Volume of liquid in visking tubing increased; (1mk)

13. a) Storage of sperms; (1mk)

    b) Provides alkaline fluid that neutralizes vaginal fluids;

    -Activates sperms; (any one correct)

14. P-Axile placentation; (1mk)

    Q-Parietal placentation; (1mk)

    R-Free central placentation; (1mk)

15. -Regulates PH of the body fluids;
    -Regulates body temperature;
    - It's a medium of exchange of material e.g nutrients and wastes.

    -Transport materials e.g Oxygen, nutrients;

    -(Contain WBC that) protects the body against infections;
    -(Contains water ,mineral ions and soluble proteins which)regulates osmotic pressure of body fluids;
    Any 1st three correct (3mk

16. i. Luteinizing hormone; (1mk)
    ii. Repair and healing of uterine wall;

    -increased level stimulates pituitary glands to secrete LH;

    iii. Development of gafian follide; Causes production of Oestrogen by ovarian tissue;

17. a) Enzymes are organic catalysts which regulate biochemical reactions in the body cells; while hormones are organic chemicals /compounds which Influence biological activities; (2 marks)

b) Substrate specific; (1mk)

18. a) Ability of the body to develop resistance against disease micro-organism in the body;

b) Natural -is inherited and transmitted from parent to offspring (i.e passed from Parent to offspring);
Acquired-develops after an infection(suffering) from a disease or through vaccination;

c) Measles; /polio;/tetanus;/whooping cough;/ (any 1 correct)1mk

19. a) Concentrates light from the source and directs it to the specimen; (1 mark)

b) Aperture below the condenser that regulates amount of light passing through the condenser; (1mk)

20. a) X-Guard cell; (1mk)

W-stoma; rej stomata. (1mk)

b) Have chloroplasts that help in the process of photosynthesis;

Have thin outer wall and thick inner wall to enhance bulging during opening of stomata; (1mk)

21. a) Hypogeal germination is where the cotyledons remain underground while epigeal germination is where cotyledons emerge above the ground; (mark as a whole) 1mk

b) –Presence of germination inhibitors ;Acc abscissic acid;
-Immature embryo; -Absence of enzymes/hormones that facilitate germination;

-Hard / impermeable seed coat; any 1st 2 correct. (2mks)

22. a) Presence of more than two sets of chromosomes in a cell; (2mk)

b) –Albinism;

-Haemophilia;

-Colour blindness;

-Sickle cell anemia; (any 1st three) 3mks

23. i. Do not have producer/producer missing; (1mk)

ii. Lizard to chicken energy flow is reversed; (1mk)

24. a) To investigate necessity of carbon(IV)Oxide in photosynthesis; (1mk)

b) i. To absorb carbon(IV)Oxide gas; (1mk)

ii. It was the control experiment leaf; (1mk)

25. a) –Plasma proteins; rej specific proteins -Blood cells; Rej specific blood cells. (2mk)

b) They are large in size ;to filter through the tiny pores of the capillaries.(1mk)

26. a) Lymph nodes / liver; (1mk)

b) Kidney tubules / liver /pancreas; (1mk)

27. a) Transpiration is the loss of water inform of water vapour while guttation is the loss of water in form of droplets; (1mk) (mark as a whole)

b) –loss /removal of excess water; -enhances absorption of water; (2mks)

28. i. Inability of the pancreas to secrete insulin; (1 mark)

ii. Inability of the pituitary gland to secrete Antiduiretic hormone;(1 mark) (Rej ADH alone)

29. a) Premolar /molar; (1 mark)

b) Has two roots /has cusps /has broad surface;

c) Has cusps to increase surface area for grinding food;

d) Has a broad surface to increase surface area for chewing/grinding;

e) Has two roots for firm anchorage in the jaw; (any one correct) 1mk

30. a) Organic evolution is the progressive development of complex organisms from simple pre-existing life forms over a long period of time; (1mk)

b) i. Analogous structures –structures that have different embryonic origin but modified to perform the same function in different animals; (1mk)

ii. Comparative embryology -comparing embryos of vertebrates; (to establish their phylogenic evolutionary relationship) 1mk