KCSE CLUSTER TESTS 11

Biology Paper 1

Answer all the questions in the spaces provided.

1. a) Biochemistry; (1mk)
b) Entomology; (1 mark)

2 marks

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

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

Site where respiration occurs;

3 marks

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

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

3 marks

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

b. Deamination; (1 mark

3 marks

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)

3 marks

6. a)Development of an ovary into a fruit without fertilization ; (1mk)
b) Auxins / I AA;

Gibberellins /Gibberellic acid; (first one) (1mk)

2 marks

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)

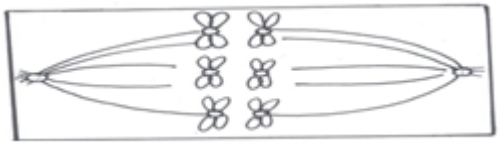
3 marks

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

2 marks

9. a)Metaphase 1 ; Rej metaphase alone.
Reason homologous chromosomes line up together at the equator; (1mk)

b)



3 marks

10. a) Oxygen; (1 mark)
b) Reutilized for respiration;

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

2 marks

11. Thin for faster diffusion of gases;
Moist to dissolve diffusing gases;

Vascularised to transport gases; (3mks)

3 marks

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)

3 marks

13. a) Storage of sperms; (1mk)
b) Provides alkaline fluid that neutralizes vaginal fluids;

-Activates sperms; (any one correct)

2 marks

14. P-Axile placentation; (1mk)
Q-Parietal placentation; (1mk)

R-Free central placentation; (1mk)

3 marks

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

3 marks

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;

3 marks

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)

3 marks

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

3 marks

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)

2 marks

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)

3 marks

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)

3 marks

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

3 marks

23. i. Do not have producer/producer missing; (1mk)
ii. Lizard to chicken energy flow is reversed; (1mk)

2 marks

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)

3 marks

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)

3 marks

26. a) Lymph nodes / liver; (1mk)
b) Kidney tubules / liver /pancreas; (1mk)

2 marks

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)

2 marks

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)

2 marks

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

3 marks

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

3 marks