KENYA NATIONAL EXAMINATION COUNCIL

KCSE 2009

BILOGY

PAPER 1

MARKING SCHEME

1. (a) Scales/ scale Reject Trail (1 mk)

(b) Most have cell wall made up of cultic (or cellulose) Rej cellulose alone

- Most reproduce by means of spores/ sporulation
- They are eukanyotee/eukaryotic
- They are heterotrophy/ lack chloroplasts / some are saprophytic while others are Parasitic
- Have network of myphae/ mycelia
- Store food inform of glycogen or oil droplets (both must be mentioned)

2. - Obtains food/ nutrients/
- Shelter (Acc Habitat Rej protection)

3. (a) magnification of the object/ image

(b) Regulates amount of light (falling on the object on microscope); Acc: Adjust / control amount of light

4. (a) (seed) dormancy/ Rej Dormincy

(b) (i) Epigeal

(ii) Protection of the delicate plumule; pulls the cotyledons above the ground (Rej shoot

5. (a) (i) production of plants and animals that have superior/ greater productivity/ have beneficial/ characteristics than either of their parents.

(ii) Condition in which an individual has more than two sets of chromosomes

(b) Rej: cosmic rays as mutageous on chromosomes

- Radiations such as alpha, gamma, beta UV and X- rays least one

(Rej: symbols α, β and increases in temperature)

- Chemicals such as calchicine, phenols, bromate, pesticides At least one
- Heavy metals e.g. lead mercury Rej symbols
- Viruses such as Papilloma Rej: mustard gas- affects gene mutation

6. (a) (i) Dicotyledonous; Rej: Dicotyledonous

(ii) Vascular bundles arranged in a ring / presence of vascular

Rej pith- not visible also found in the root of monocots

Rej intra vascular bundle

(b) (Divides to) give rise to secondary thickening (growth/ increase in growth/ diameter/ width of stem/ gives rise to new/ additional xylem and phloem tissues

7. (a) site for protein synthesis

Rej: Autolysis

NB Must mention effects of lytic enzymes

(b) Break down worn out cells/ organelles / food materials

8. (a) The placenta/ takes the role of the ovum of producing the hormone Progesterone (which maintains pregnancy)

(b) Production of gametes/ spermatozoa Acc male gamete/ male sex cells

Production progesterone hormone which maintains pregnancy Acc. Male sex hormones

9. (a) (i) Salmonella typhi; ignore underlining but must be written correct

(ii) Hystolytic/ Eutamoebia

(b) Malaria

10. (a) (i) Order: ceased to function then reduced in size

Are those structures that have ceased to be functional over a long period of time and hence reduced in size.

(ii) Appendix/ coccyx/tail (tail bone)/ semi - lunar folds of cornea of eye/ nictitating membrane caecum/ ear muscles/ body hair/ Acc. Post and nail

(b) Disease causing organisms mutate; and become resistant

11. (a) auxiliary/ lateral buds spront/ bronches will be formed

(b) Decapitation removes the hormone/ ouxins /IAA which is produced in the terminal bud/ the stem tip; abseul/ removal of the hormone/ auxins/ IAA promote branch/ development of auxiliary lateral buds.

12. (a) scapula; Acc: scapular

(b) (i) Humerus ***Acc Humerous but rej Humourous***

Rej Ball/ socket, Rej socket and ball joint

(ii) Ball and socket joint

(c) Attachment of muscles

13. (a) In diffusion (Rej movement molecules) molecules move from a highly conc. Region to a lowly conc. Region while in active transport molecules move from a lowly concentration region to a highly concentration region; on diffusion molecules move along conc. gradient while in active transport molecules move against conc. gradient. No energy is required in diffusion while energy is required in active transport/ active requires carrier molecules while carrier molecule not required in diffusion;

(Acct if table of companion used

(b)

(i) absorption of water from the soil by root hair cells/ movement of water between plant cells/ from cell to cell/ opening one closing of stomata/ support in herbaceous plants due to turgidity / feeding in insectivorous plant.

(ii) Water reabsorption by blood capillaries from renal tubules/ absorption of water in colour dicututary/ canal/ gut movement of water from cell to cell in animals.

14. Parenchyma/ collenchymas

15. Cytoplasmic streaming / Acc: cyclosis for cytoplasmic streaming

16. (a) Tracheole Rej: Trachea/ Tracheole system

(b) Moist for gases to dissolve (in solution) Branched/ ramify

Numerous tubes to increase surface area (for gaseous exchange)

17. Some wastes e.g gases easily diffuse out

Waste products are mainly made from carbohydrate and (NB: must mention some/ most) hence are not as harmful as proteineous materials/ waste products are formed slowly / little accumulation of wastes/ plants are leas active/ some waster products (such as 0_2 and are usable- recycled; some waste products are store in non- toxic forms in leaves, flowers, fruits and old bark.

18. (a) Rate of photosynthesis increases as CO_2 concentration increases up to a certain level/ optimum level and (vise versa)

NB: Must mention up to optimum level or certain level

Acc: Reverse: The rate of photosynthesis decreases with decrease in CO2 concentration until it stop rate of photosynthesis increases as the light intensity up to an optimum level (and vice versa)

19. (a) Leads to eutrophication; causes water bone disease

- Kill organisms in water;/ reduce amount of oxygen in the water/ reduce the quality of water for consuming change water PH; ? interferes with food charus/ trophic levels.

(b) Respiration/ defecation/ excretion

20. Belt transect/

Line transects

21. Pancreases releases glucagons to stimulate liver cells to convert stored glycogen to glucose; fat converted to glucose/ reduces rate of respiration. Rej if source of glycogen is the liver.

22. Large/ powerful for cracking/ breaking/ crushing bone/ slide past each other/ scissor- like for shearing/ cutting/ slicing (off) flesh/ tendons/ skin from bone

23. A component of haemoglobin/ formation of haemoglobin ACC> myoglobing

24. (a) Young people are actively/ rapidly growing hence require more energy than older people NB: growth has to be mentioned

(b) Manual workers require more energy than secretary workers

(c)Males are more muscular hence require more energy than females

25. Thin walled for easy diffusion of gases/ store a lot of air/ have large air spaces which store air for buoyancy/ for gaseous exchange

26. Inner membrane is highly folded/ have cristae to provide a large surface area/ for attachment of respiratory enzyme.

27. Baking/ brewing

Rej: Formation of butter, cream, glucose

- Formation of dairy products- cheese, yoghourt, sour milk
- Formation of organic acids- oxalic acid, vinegar (Ethamic acid, citric acid, butyric acid)

28. (a)

Arteries	Veins
- Thick muscular	- This muscular walls

walls - No valves (expect at bases of pulmonary artery and aorta) - Narrow lumen	- Have valves - Wide lumen

(b) Arteriosclerosis/ rej Atheroma – due to the deposition of cholesterol which makes human narrow

29. When humidity in high the air around the leaf gets saturated with water vapour hence) less space for water vapour from the leaf to occupy/ low saturation deficit/ low diffusion gradient/ the difference in concentration of water vapour in the atmosphere and in the air spaces is greatly/ highly reduced.