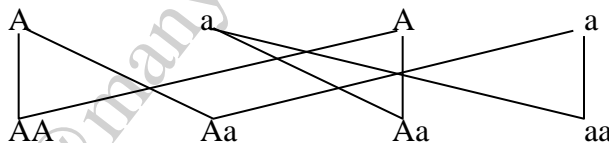


BIOLOGY PAPER 231/1 K.C.S.E 1998
MARKING SCHEME

1. Blood has no antigens and does not cause agglutination (with other types)
2. Yellowing of leaves/stunted/ growth/chlorosis/ lack chlorophyll
3. Skeletal muscle cell
Mitochondria
Palisade cell
Chloroplasts
4. To facilitate transportation of gases/ Exchange of gases; if gases are mentioned (both must be O₂ and CO₂)
5. Symbiotic/ both benefit/ mutual benefit; correct description of mutual benefit
6. (a) Phototaxis
(b) To avoid desiccation/ drying/ dehydration
Escape from predators;
7. (a) Femur
(b) Ball and socket
8. (a) wind
(b) To enable it trap pollen grains in the air; reject catch/ attach for trap
9. Turgidity
Presence of collenchymas (in the cortex)
10. -Light intensity decreases with depth light limiting
- Temperature decreases with depth
11. - Use of unsterilized instrument;
- Temperature decreases depth
- blood transfusion
- Mother to the foetus/ mother to baby infant/ breast milk/ sharing of instruments
e.g needles syringes, razor blade e.t.c
- Mixing of infected blood through cuts

12. (a) Aa, Aa, Acc, both are Aa
(b) Normal children AA, Aa,
Genotype of the albino child
Albino child aa,



(c) 25% $\frac{1}{4}$

13. (a)

Meiosis	Mitosis
(i) Reduction/ having chromosomes/ haploid no. of chromosomes cells.	Maintenance of chromosomes number/ diploid no. of chromosomes/ cells
(ii) Takes place in reproductive cells/ glands gamete formation	In somatic cells/ body cells/ for growth
(iii) Crossing over takes place/ variation	No crossing over no variation
(iv) 4 daughter cells 2 division processes	2 daughter cells 1 division processes

- (b) X or / x and Y; Rej XY, X alone, XX
Ova?
X/XX
14. (a) Light; Rej: light intensity
(b) Test for starch
(c) (i) The covered part of the leaf remain brown/yellow/ retain color
Of iodine, and the uncovered parts turned blue/ black; rej blue alone black alone.
(ii) Starch was formed in the covered part of the leaf (because of the presence); while starch was not formed in the covered part of the leaf (because of lack light)
(d) To destarch the leaf; OWETT
15. (a) (i) Species A;
(ii) The rate of multiplication/ growth in A is faster than of species B
(b) (i) One year and three years
1-3 years shortage of resources more suitable environmental Conditions/ such as food space e.t.c resource were not limiting hence the population increased exponentially rapidly; acc correctly named resource e.g food space.
(iii) Three years and seven years
3-7 years shortage of resources/ limiting/ birth rate equals death rate; hence the population had become stagnant/ constant; acc;
Environmental resistance has set in rej. Incorrect resources e.g PT and T.
(c) Species A would decrease (because of there is less competition with species A/ More resources available.
16. (a) (i) Protozoa
(ii) Unicellular/ single celled
(b) N- Contractile vacuole
P – Cilia, Acc cilium
Q – Gullet/cytopharynx
(c) Cilia
Streamlined body.
17. (a) (i) Sensory neurone/sensory nerve cell; reject sensory nerve
(ii) Cell body on a branch/ at the side of axon/off the axon/cell body unipolar both axon and dendron are long.
(b) T- myelin sheath; Acc Neurilema
(c) Direction of impulse from receptor towards cell body.
18. (a) If axes reversed allow marks for identification of curves only max 2
Correct scales
Correctly leveled axes
Curves reject broken lines for curves
(b) 0-1 hour.
i) Acc constant/low/below normal levels in blood; No/little digested foods/glucose from the intestines/gut/alimentary canal/absorption.

- ii) 1-2 hours
Sharp increase in concentration of glucose in blood; (more) absorption of glucose; after digestion of the meal.
 - iii) 2-4 hours.
Glucose concentration declining/decreasing; less glucose being absorbed; (more) glucose being converted to glycogen in the liver/tissue/used for (tissue) respiration.
 - iv) 5-7 hours.
Concentration of glucose stabilizes/constant/ this is the normal glucose level concentration in the blood.
- (c) The concentration of glucose in the iliac vein is lower than in the hepatic portal vein because it hasn't been stored in the liver to be used respiration. Portal vein because most of it was stored/used up by the liver/other tissues/respiration.
- (d) Proteins take longer to digest.
19. Comparative anatomy/taxonomy.
Members of a phylum group show similarities; organisms have similar structures/similar organs performing similar functions e.g. digestive system/urinary system, nervous system. Any correct example i.e. vertebrate heart.
- The pentadactyle limbs/ any correct example; these are homologous organs/structures. Homologous – same origin structure different functions. Analogous structures – different structures performing the same function e.g. wings of insects, bats and birds. Analogous different origin structure, same function convergent.
- Fossil records/palaeontology
These are remains of organisms preserved in naturally occurring materials for many years show morphological changes of organisms over a long period of time.
- Comparative embryology.
Acc. Any 2 names embryos > vertebrate embryos the morphologically similar; suggesting the organisms have a common origin/ancestry.
- Geographical distribution.
Present conditions are thought to have been a large land mass joined together, as a result of continental drift; isolation occurred bringing about different patterns of evolution i.e. The llamas in the Amazon resemble the Camel. Any other example e.g. Kangaroos in Australia, Jaguar in South America, Camel in Africa.
- Comparative serology/physiology.
Antigen/antibody reactions/Rh factor/blood group/haemoglobin structure; reveal some phylogenetic structure. Relationship among organism/common ancestry.

20. The mammalian intestines are relatively long/coiled/folded. This allows food enough (enough) time/increases surface area for digestion and absorption of products of digestion. The intestinal surface area for absorption. The glands have enzymes which secrete enzymes for digesting e.g. of correct enzyme, maltase, sucrase, lactase, enterokinase and peptidases. Some glands/goblets cells also produce mucus which protects the intestinal wall from being digested, reduce friction. Intestines have opening of ducts which allows bile/pancreatic juice into the lumen. The intestines have circular and longitudinal muscles whose contraction/relaxation/peristalsis leads to the mixing of food with acc. At least enzymes/juices facilitating rapid digestion and helps push food along the gut. Intestines are well supplied with blood vessels to supply oxygen/remove digested food. Presence of lacteal vessels for transport of fats/lipids. Have thin epithelia to facilitate fast/rapid absorption/diffusion. Allow increase in surface area for absorption only. Cell biology/cytology. Occurrence of cell e.g. mitochondria, ribosome's, nucleus, cytochromes organelle point to a common ancestry.

<http://atikaschool.org>
sales@manyamfranchise.com [0720 450 451]