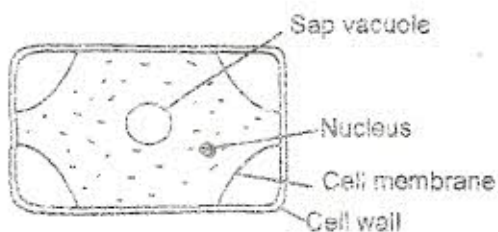
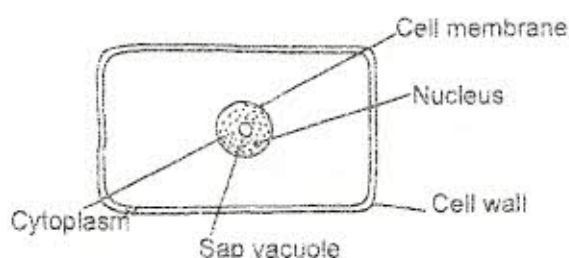


K.C.S.E 2008 BIOLOGY PAPER 231/1
MARKING SCHEME

1. a) xylem
b) phloem
c) apical meristems (3 marks)
2. a) To remove toxic/ harmful substances/ urea/ nitrogenous wastes from the blood stream. (1 mark)
b) To return useful substances/ glucose and amino acids back into the bloodstream. (1 mark)
3. a) Hepatitis B (accept all types of hepatitis A - E) (1 mark)
b) i) *Vibrio cholerae* (1 mark)
ii) *Candida vaginalis*/*Candida albicans*/vaginitis (1 mark)
4. a) The red blood cell was placed in a hypertonic solution /more concentrated/it lost water by osmosis (2 marks)
b) Start of Plasmolysis (1 mark)



End of Plasmolysis



5. a) temperature; pH; co factors, co-enzymes; substrate concentration; inhibitors; product concentration; enzyme concentration. (2 marks)
- b) - Increase in temperature increases rate of enzymatic activity upto an optimum temperature.
- Decrease in temperature inactivates enzymes thus decreases/lowers enzymatic activities
- Optimum temperature gives maximum/highest enzymatic activities
- Very high temp. above optimum denatures enzymes
- Low temp inactivates enzymes
- pH - enzymes work best at optimum pH; extreme changes in pH denatures enzymes
 - co-factors - activates enzymes increasing their rate of activities.
 - co-enzyme- activates enzymes increasing their rate of activities
 - substrate conc - increases rate of enzyme activities up to a certain point.
 - enzyme conc- increase in enzyme increases rate up to a certain point.
 - product conc- increase in product conc slows down enzymatic activities.
 - inhibitors - slow down/stops enzymatic activities (any 1 mark)
6. a) Failure of homologous chromosomes/ to segregate during meiosis/ failure of sister chromatids to separate during meiosis (1 mark)
b) height; weight/mass; length of toe/finger; skin colour/ skin pigmentation; intelligence (2 marks)
7. a) Preserved remains of dead organisms that lived in ancient times; (1 mark)
b) When two dissimilar species/structures/organisms of different embryonic origin; change in response to similar environmental conditions. (3 marks)

- For more free KCSE Revision papers and Answers visit
<http://www.joshuaarimi.com>
8. a) anaphase (1 mark)
 - b) Chromatid pairs move towards opposite poles, ends of the cell; spindle fibres begin to disappear/shorten; (2 marks)
 - c) root apex/root tip/ shoot tip/base of internode/ tips of lateral buds; young leaves (1 mark)
 9. a) Basal metabolic rate/occupation/ activity/workdone (3 marks)
 10. (a) Antigen A; B; Rhesus factor/Rhesus antigen/Rhesus D antigen; (2 marks)
 - (b) pliable/flexible/able to change shape; (1 mark)
 11. (a). Ability of organisms to maintain a stable/constant internal environment; (1 mark)
 - (b) Breathing mechanism/gaseous exchange; Thermoregulation/ temperature regulation; Balance of water and mineral salts/Osmoregulation; regulation of blood sugar level/glucose; Regulation of pH in the body fluids. (3 marks)
 12. - Transport of protein; (2 marks)
 - Transport of lipids / steroids;
 13. (a) Fovea/Fovea centralis/Yellow spot
 - (b) Inverted; real; small in size; back to front; reversed; diminished; (2 marks)
 14. Growth – Increase / decrease in numbers / change in numbers
 Dispersion – Spread / distribution of organisms in a habitat;
 Density - the number of individuals of same species per unit area; (3 marks)
 15. Muscles respire anaerobically; resulting in accumulation of lactic acid in the tissue; causing fatigue/
 muscle cramps (2 marks)
 16. (a) Photosynthesis; (1 mark)
 - (b) Carbon (IV) oxide concentrated /Temp/amount of chlorophyll; (1 mark)
 17. (a) Few dividing cells/cells not adjusted to surrounding environmental factors (1 mark)
 - (b) Most cells fully differentiated/rate of cell division equals rate of cells dying. (1 mark)
 18. Transparent to allow light to penetrate photosynthetic tissue; single layer of cells/thin to reduce distance over which light penetrates photosynthetic tissue; presence of stomata for gaseous exchange; closely fitting cells to protect inner tissues. (2 marks)
 19. (a) Cardiac muscle; (1 mark)
 - (b) Contraction of the heart. (1 mark)
 20. (a) Circulatory system in which blood passes through two capillary systems before flowing back to the heart/blood passes only once through the heart to complete its circuit around the body (1 mark)
 - (b) Earthworm/leech/ragfish/Fish (1 mark)
 - (c) Ostium/Ostin (1 mark)
 21. (a) State during which a seed cannot germinate/state of rest before seed germination (1 mark)

- (b) Abscisic acid (1 mark)
22. - Large airspaces (2 marks)
- Thin cell walls
23. (a) Canine (1 mark)
(b) Pointed/sharp for piercing/tearing/cutting food (1 mark)
- (c) (i) C - prevents degeneration of muscles and cartilages/prevents red spot in skin/maintenance of healthy cells/gums/promotes absorption of iron/prevents scurvy / quick healing of wounds / boost immunity/antioxidants/formation of connective tissue/prevents anaemia (1 mark)
(ii) K- Blood clotting
24. Light reaction - Grana/granum/thyllakoid (membrane)/lamellae (2 marks)
Dark reaction - Stroma
25. Bean Plant Dicotyledonae; leaves net veined/leaves with petioles/tap root system/cross section of stems showing vascular bundle arranged Reason - in a ring round pith/cross section of roots have star shaped xylem with phloem in between arms of xylem/floral parts in multiples in/two cotyledons.
Bat - Mammalia Reason - presence of fur/hair/mammary gland/presence of sweat glands/3 ear ossicles/ presence of diaphragm/2 pinnae (4 marks)
26. (a) Inducing polyploidy/cancer therapy/treatment gout (1 mark)
(b) Meat tenderizer (1 mark)
27. (Anaerobic) micro organisms/bacteria breakdown harmful substances in sewage. (1 mark)
28. (a) Budding (1 mark)
(b) Protandry - stamens/androecium/male parts mature before the carpels of a flower/anthers maturing before stigma.
protogyny - carpels/gynoeccium/pistil/female parts mature before the stamens of a flower (2 marks)
29. Cushions foetus against shock/mechanical damage/ provide a suitable medium for embryo to grow/allows movement of foetus/reduces friction /lubrication/ suspends foetus providing support (1 mark)
30. (a) Pelvic girdle/pubis bone/innominate bone (1 mark)
(b) (i) Femur;
(ii) Obturator/ foramen (1 mark)