**KENYA CERTIFICATE OF SECONDARY EDUCATION.**

**BIOLOGY PAPER 1 (231/1)- MARKING SCHEME (100MRKS)**

1. Presence of ribosomes for protein synthesis;

Presence of channels for transport of proteins and other substances; (1mk)

1. Number of wings

-number of legs and other appendages;

-number of body parts;

-type of eyes (simple or compound) max;1mk each

1. Diffusion is movement of particles(ions ,molecules) from where they are more to where they are few against a diffusion gradient ;(1mk)

Active transport is the movement of ions/molecules from where they are few to where they are more using energy against a concentration gradient; (1mk)

1. i.Upper jaw = 8x2=16

ii.Lower jaw=7x2 =14

 30;(1mk)

Or (2+5+ 8) x 2 = 30 teeth.

iii.Herbivorous ;(1mk)

it has the molar, premolars and incisors except canines ;(1mk)

1. a.To increase the surface area over which gases will diffuse;Acc.oxygen or carbon (vi) oxide for gases.(1mk)

b.Carbonic anhydrase;

1. a.Vitamin K;

Thrombokinase /thromboplastin;

Calcium /calcium ions; (½mk)

b.Heparin is a chemical substance that prevents blood form clotting within the blood vessels;(1mk)

Histamine is a chemical substance that is produced by tissue cells after an injury/sting/allergic reaction ;(1mk)

1. a.Modulla oblongata;(1mk)

b.the nostrils have a mucus lining that traps dust unlike the mouth;

Nostrils have cilia that facilitate the movement of dust particles outwards;

Nostrils have chemoreceptorۥs for detecting smells/chemicals unlike the mouth ;(max 2=2mks)

1. a. Energy/ATP;(1mk)

b.A-Matrix;

 B- Cristae;

 C.Outer membrane;

D-Inner membrane; (½mk @ max 2mks)

1. a. Little or no insulin in the blood;(1mk)

b.Boil a little urine sample with Benedictۥs solution; an orange precipitate confirm presence of sugar in the urine;(2mks)

1. a. Ecological niche-the position an organism occupies and the role itpalys in a habitat;(1mk)

b.Habitat – a specific place where an organism lives/adapted to live ;(1mk)

1. a. Diaphragm – regulates the amount of light passing through the specimen;(1mk)

b.Objective lenses-for magnification of the specimen;(1mk)

1. a. Respiratory quotient-the ratio of the volume of carbon (iv)oxide produced to that of oxygen used in a respiratory process;(1mk)

b.(i)R.Q =70cm3= 0.7;(1mk)

ii.Lipid;(1mk)

1. a.An increase in amount of haemoglobin,an increase in the number of red blood cells;(2mks)

b.To increase the surface area for transport of oxygen/to increase the volume of oxygen in the body/to trap more oxygen;(1mk)

1. A greater number of chloroplasts that trap light of low intensity;

Their leaves are highly dissected /branched to increase the surface area for photosynthesis;

Epidermis has chloroplasts; (max 2=2mks)

1. Bacillus anthracis;(1mk)

Neisseria gonorrheae;(1mk)

Bordetalla pertusis;(1mk)

1. Due to anaerobic respiration; hence production of ethanol in the roots; which kills them and the whole plant;(3mks)
2. a)A and B ;(1mk each)

b)They may be transfused with all other blood group’s they lack antibodies ‛aۥand‛ bۥ ;max (2mks)

1. thermoregulation/regulation of body temperature;

Osmoregulation/regulation of water and salts.

Blood sugar regulation ;(3mks)

1. a.are elongated to increase the surface area of absorption;

their hypertonic sap enables osmosis to take place;

Presence of a thin cell membrane to quicken diffusion ;(max 2=2mks)

b.Translocation ;(1mk)

1. a.to reduce diffusion distance of carbon (iv) oxide /reduce the penetration distance of light;

b.for gaseous exchange /store gases;

c.allows gaseous exchange /allows transpiration to take place;

a.(1mk)

1. a. Secondary consumer;(1mk)

b.(i) Grass antelopes lions vulture;

 ii)Grass caterpillars Guinea fowl Vulture;(1mk)

c.i) Grass;(1mk)

ii)Many organism’s depend on it for food/energy, being the primary producer;

-energy is lost during its transfer to higher levels through respiration, excretion and defecation ;(2mks)

1. Low temperatures inactivate enzymes;

-increase in temperature up to the optimum increase the reaction rate/turn over;

-higher temperatures above the optimum denatures enzymes;(3mks)

1. A.Desert/semi a desert; cc.arid/semi-arid areas;rej. Dry areas(1mk)

B.Presence of large and succulent leaves;

-pressure of thorns /prickles ;(2mks)

1. a.X; (1mk)

b.Has fewer stomata on both sides of the leaf than Y;(1mk)

1. 1)a.Animal a mammal …………………………………hyena;

b.Animal not a mammal……………… go to 2;

2)a.Animal with body covered with feathers………………. Bird;

 b.Animal with body not covered with feathers……………….. go to 3(1mk)

3)a.Animal with legs………………..lizard;(1mk)

 b.Animal without legs……………………………………….snake ; (1mk)

 Acc.any other correct

 Key.

1. i.Defense against infections;

ii.Distribution of heat;

(1mk each)

1. a.i)Trachea; (1mk)

ii) Lungs (1mk)

iii)Rib cage;(1mk)

iv) Diaphragm;(1mk)

b.Volume in the bell jar will increase ; and pressure will decrease in the bell jar;air will rush into the lungs filling them /inflating them;(3mks)

1. a.i)A- Afferent arteriole;

B-Efferent arteriole;

C-Glomerulus ;

D-Bowman’s capsule;(½mk=2mks)

ii. C- Blood;(1mk)

 D- Glomerulus filtrate ;(1mk)

iii.Ultrafiltration ;(1mk)

iv.The fluid in C contains blood cells and large protein molecules while the fluid in D does not;(1mk)

1. They interbreed to give rise to fertile offspring;(1mk)
2. a. The visking tubing is semi permeable; and allows the small glucose molecules into boiling tube by diffusion;(2mks)

b.(i) the volume of the liquid in the boiling tube decreased .(1mk)

ii) The volume of the liquid in the visking tubing increased ;( 1mk)

1. are moist to dissolve gases;

-have a dense network of blood capillaries to transport gases;

-They have thin membranes/thin epithelium to reduce the diffusion distance;

-They have a large surface area for transport of more gases;

 1mk each=3mks

1. a.Deamination;(1mk)

b.Helps to regulate the amount of proteins /amino acids in the body;(1mk)

c.Liver (1mk)