**BIOLOGY 231/1**

**JULY/AUGUST 2016**

**MARKING SCHEME**

1. a) Coronary artery

b) Umbilical vein

1. Different structures absorbs stain differently hence become more distinct/clearer, visible.
2. Rate of water absorption is more than water loss/transpiration and plant droops
3. a) Hydrolyse (breaks down disaccharide/Non reducing sugar to monosaccharide/reducing sugar

b) Neutralize the dilute hydrochloric acid

1. a) (i) Sebum

 (ii) – antiseptic.kill pathogens

 Makes skin hair be soft/oily

 Makes hair flexible/waterproof

b) – actively dividing cells giving rise to the granular layer

 - contain melanocyte cells that produce melanin that gives the skin its colour/protects skin against ultra violet rays.

1. a) (i) 20 chromosomes

 (ii) 40 chromosomes

b) anther/ovary

1. a) at 35oc temperature is at optimum while at 50oc enzymes are denatured

b) Enzymes are denatured

c) Carbonic anhydrase

1. a) Germinating seeds respire using up oxygen and producing CO2, which dissolves in KOH creating a partial vacuum taken up by KOH

b) No rise in the level of water sine the CO2 is insoluble in water

1. – reduces competition between two different stages
* Pupa can survive adverse conditions/pupa is a non feeding stage
* Dispersal prevents overcrowding
1. a) (i) 60mg/100 cm3

 (ii) 10 min/15 min

b) 47mg/100 cm3

1. a) Medulla oblongata

b) Cerebrum

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| 12. Lamecks theory | Darwins theory  |
| 1. deals with inheritance of acquired characteristics
2. states that environment produces traits which are inherited
 | Deals with inheritance of genetically acquired characteristicsStates that characteristcs |

1. - breaks dormancy in **some** plants
* Promotes flowerings in some plant species
* Promote cell division in the presence of light
* Promotes fruit formation on shoot
* Lower concentration of cytokinins enzymes senesunce/ aging
* Normal concentration promotes cell enlargement
* It stabilizes protein and chlorophyll
* It stimulates lateral bud development
* Together with IAA , it forms callus tissue during healing of wound
1. – plants excretory products are less toxic
* Some excretory products are re-usable/recycle
* There is low accumulation of toxic waste products
* Excretory products are stored in harmless non-toxic form.
1. a) metaphase I

b) Chromosomes align themselves at the equator

- Chromosomes are all non- homologus

1. – absorption of water
* Packaging of indigestible food material to form feaces
* Secretion of mucus
* Absorption of mineral salts
1. – faster flow of blood to the tissue due to higher pressure generated to supply nutrients /remove of waste products/organisms involved are more active
* Blood does not go in direct container with white cells hence cells are not killers
1. (a) Axis

(b) Has odontoid process/Reg

(c) Atlas

1. J- Ciliary body muscles

N-Aqueous humour

L-Retina

(b) P- Transparent to allow light to pass through/curved to refract light.

 K-Biconcave to refract light

c) Hypermetropia/Long sightedness

1. One molecule fuses with functional egg cell to form a diploid zygote. The other male nucleus fuse with the two polar nuclei to form primary endosperm
2. – hollow for the passage of respiratory gases

- Numerous goblet cells to produce mucus to trap dust particles/micro-organisms.

- has cartilaginous rings to keep the trachea open/prevent it from collapse during inspiration.

- Cilia that moves mucus/particles to the top of he trachea and removal

1. Gill filament
2. (a) stimulates liver cells; to convert excess glucose to glycogen for storage; to fat for storage; facilitate oxidative breakdown of excess glucose to CO2 , ATP and H2O

(b) stimulate DCT and collecting ducts to become more permeable; to water and move water is reabsorbed into the blood stream.

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| BRYOPHYTA | PTERIDOPHYTA  |
| * Plant body is thalloid
 | Plant body differentiated into roots/stems and leaves |
| * Lacks vascular bundles
 | Has vascular bundles |
| * Gametophyte is dorminant generator
 | Sporophyte is dorminant generation |

1. Hydrogen toms;/ion

ATP

1. Transport of water and mineral salt

Support

1. Packaging of glycoprotein

Transporting of glycoprotein

Fromation of leygsomes