231/1
FORM 4 BIOLOGY
MARKING SCHEME PAPER 1

1. Multicellular;
   Green ;
2. The hormones (insulin and glucagon); pass through blood and not through the duct;
3.
   - Body segmented;
   - Has jointed legs
   - Body covered by an exoskeleton
   - Body bilateraly symmetrical
4. Auxins move away from light, causing faster growth on side away from light.
5. Long eyeball; use of divergent/ biconcave lens;
6.
   a) Visking tubing turned blue black; contents of beaker remained blue(clear)
   b) To show that visking tubing is semi-permeable
   c) Diffusion
7.
   i) Iodine solution, Rj iodine
   ii) Green parts show starch present while other parts show starch absent.
   iii) To show that chlorophyll is necessary for photosynthesis.
8.
   - Large featherly stigma
   - Small, dull corolla, small, light pollen grains
   - Stamens &carpels located outside corolla
9.
   (i) Mitochondrion, Rj mitochondria
   (ii) Has cristae to attachment of respiratory enzymes
   (iii) Has matrix where respieration takes place
10.
    a)

Aerobic	Anaerobic
- Uses oxygen - Produce large quantities of energy - Water is produced - Occur in mitochondria	- Oxygen not used - Low energy produced - Water is not produced - Occur in cytoplasm

    b)

    - Used in baking industry
    - Used in brewing industry
    - Used in dairy industry

11.
(i) Alveolus
(ii) Gill filament
(iii) Tracheole

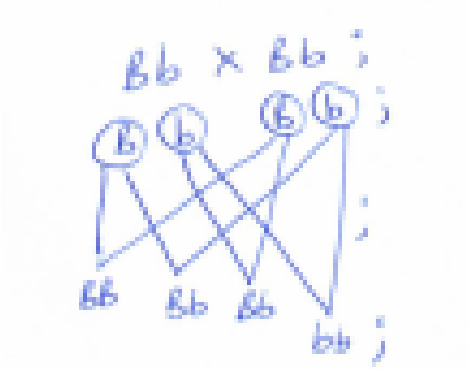
12.
(i) Planae, Bryophyta
(ii) A – capsule
B – Seta
C – leaf-like strucures
D – rhizoids
(iii)
- Anchorage, (of the plant to the ground)
- Absorption of water and mineral salts.

13.
A – Radius
B – Ulna
C – sigmoid notch;
D – Olecranon process

14.
(i) 1 2/2 c1/1pm2/2m 3/3
(ii) Increasing food suface area; for enzyme action
(iii) Homodont dentition, Heterodont dentition

15.
(i) Synthesis of ribosomes
(ii) Used in cell division/ formation of cilia and flagella
(iii) Site for photsynthesis

16.
a) Bb X Bb



b) Genotypic rato 1BB: 2Bb: 1bb; or BB:Bb:bb
1:2:1
Phenotypic ratio 2 black: 1 white or Black : white

3:1

17.
a) Where structures of different origin are modified to perform same function in different animals.

b)
- Geographic distribution, organisms in different continents show similarities (same origin) and difference (changes her occurred)
- Comparative embryology, embryos of vertebrates similar showing same origin but develop into different animals showing change,
- Comparative anatomy, common pentadactyl limb in vertebrates, which has developed into different organs.
- Fossil records – fossils show similarity (origin) and differences with current skeletons showing changes have occurred.

18. One male nucleus fuse with egg cell; to form a diploid zygote; while the other fuse with the two polar nuclei; to form a triploid endosperm nucleus;

19.
- Elongated to increase surface area for absorption of water and mineral salts.
- Has hypertonic cell sap to absorb water by osmosis mineral salts by active transport.
- Has a thin cell wall to reduce diffusion distance.

20.
(i) Reflect light to the stage
(ii) Control amount of light reaching the stage
(iii) A lens that magnify the object

21.
a) When hot, sweat is produced to cool
When not, erector pili muscle relax and hair fall to cool
When hot, blood vessels vasodilate to cool body and vasoconstricts when cold.
Sweating increase when there excess water in blood.

b) It is excreted in solid form, so little water is lost;