FORM FOUR

BIOLOGY PAPER ONE (PP1)
MARKING SCHEME

1.a) Pair of forceps (1mk)

b) Pooter (1mk)
c) Sweep net. (1mk)

2.

Arteries	veins
- Narrow lumen	- wider lumen
-Thick Muscular & elastic wall	-Thin muscular inelastic walls
- have no valves	-Have valves

First 2 = 2mks

3.a) Guard cells (1mk)
b) Contain chloroplasts where photosynthesis occurs producing sugars that affect osmotic pressure for opening and closing of stomata.
-Thin outer and thick inner walls for opening and closing of stomata. (2mks)

4.a) Absiscic Acid (1mk)
b) - Thin cell walls
-Dense cytoplasm
-No vacuoles
-Actively dividing cells (mark first two) (2mks)

5.a) Sensory neuron (1mk)
b) Cell body off the axon. (1mks)

c)

6. Cell size $= \frac{Diameter\ of\ field\ of\ view}{No.of\ cells}$
8 x 1000 = 8000 micrometer
$\frac{8000}{16}$ = 500 micrometes (2mks)

7.i) *Plasmodium malariac*
Plasmodium vivax
Plasmodium ovale
Plasmodium falciparon any one rej. Plasmodium alone
Scientific rules to apply

ii) Candida albican
8.i) A – cortex
B – Pelvis

ii) Glomerulus

-Bowman's capsule
-Proximal convoluted tubule. (2mks)
- Distal convoluted tubule.

9. Planting more trees
-Reduce emission of CO2
- Reduce use of woods
- Reduce use of fossil fuels (3mks)

10.a) Lipase (1mk)
b) Many chamber / Long gut to provide large S.A for digestion.
- Harbor bacterias which produce enzyme cellulose to digest cellulose.

11.i) RQ = $\frac{Volume\ of\ CO_2\ produced}{volume\ of\ O_2\ used}$ = $\frac{102}{145}$ = 0.7 (2mks)

ii) Lipids Acc. Fats/oils (1mk)

iii) Adenosine Triphosphate. Rej. ATP (1mk)

12.a) Negative chemotaxis Rej. If negative is missing. (1mk)
b) Enables the organisms escape harmful chemical substances. (1mk)

13.a) Open: Semilunar valves open. (2mks)
Close: Bicuspid and tricuspid valves
Atrio – ventricular valves;

b) Sino-atrial node. (1mk)

14. - Distortion during sedimentation
- Only partial preservation of the organism occurs because softer parts decay hence incomplete records.
- Destruction due to geological activities e.g soil erosion & earthquakes. (2mks)

15. - Fertilisation is independent of eater
- They posses vascular bundles
- Body differentiated into roots, stems and leaves. (3mks)

16.a) Scapula (1mk)
b) Humerus (1mk)
c) Ball and socket joint Rej. Socket and ball joint (1mk)

17. Lacks antigens; to react with the recipients' antibody. (2mks)

18.a) Anaphase 1.
b) - Homolgous chromosomes separated and start migrating to opposite poles.
- Sister chromatids are still attached at the centromere. (2mks)

19.a) It is an alternative form of a gene controlling development of contrasting characteristics / traits. (1mk)
b) Crossing over during cell division.
- Independent assortment during gamete formation (2mks)
- Mutation

20.a) Diffusion

b) Visking tubing is semi permeable; therefore allows passage of iodine molecules from the beaker into the visking tubing., thus producing a blue black colour with starch solution; starch molecules are too large to pass through the pores of the visking tubing into the solution in the beaker hence iodine solution in the beaker does not change colour; (3mks)

21. Have thin epithelium to reduce diffusion distance of respiratory gases.
Highly vascularised for efficient transportation of respiratory gases.
- Has large surface area for maximum diffusion of respiratory gases. (3mks)

Rej. Moist surface

22.a) Mitochondrion Rej. Mitochondira (1mk)

b) Crista Rej. Cristae (1mk)

c) Increase the surface area of attachment of respiratory enzymes. (1mk)

d) Sperm cell
- Skeletal muscle (1mk)

23.a) Photolysis. (1mk)

b) Chloroplast (1mk)

c) Sunlight (2mks)
- chlorophyll

24.i) Divergent: One basic structural form modified to perform different functions.
Convergent: Different structures modifies to perform same function due to exploiting same environment. (2mks)

ii) Carbon-dating C^{14} (1mk)

25.a)i) More enzyme active sites available; for a large number of molecules of substate hence increase in the rate of reaction;
Acc. Rapid increase of rate of reaction (2mks)

ii) All active sites are occupied / enzyme substrate equilibrium; hence rate of reaction is constant. (2mks)

26.i) J – Sporangium
M – Sporangiophore (2mks)

ii) Absorption of soluble substances.
- Anchorage of mould on substrate. (2mks)
- Secretes digestive enzymes

27.a) Medula Oblangata

b) Celebrum (2mks)