FORM 3
BIOLOGY PAPER 1
MARKING SCHEME
END OF YEAR 2025 EXAM (OCTOBER)

1. a) X - Epicotyl;
Y - Radicle; rej Radical

b) Epigeal germination;

c) Provides anchorage; to growing seedling / absorb water/ mineral salt; form the soil

2. i) Golgi bodies / Golgi apparatus;
ii) Nucleolus;

3. i) Anaerobic respiration in plants;
ii) Amount of O_2 needed to breakdown accumulated lactic acid;

1.Name the hormone that control the following processes in human body.
i)Contraction of endometrium wall during parturition (1mk)**oxytocin**
ii)Development of female secondary sexual characteristics (1mk) **oestrogen**
iii)Promote milk let-down from the mammary glands (1mk) **prolactin**
2.Abuffalo in Lake Naivasha National park was infected with fleas. State the trophic level occupied by the
i)Buffalo (1mk) **2nd trophic level (primary consumer)**
ii)Fleas (1mk) **3rd trophic level (secondary consumer)**
5.State the tissue responsible for :-
a)i)Primary growth (1mk) **apical meristem**
ii)Secondary growth (1mk) **cambium and vascular meristem**
18a)State three characteristics that are found in kingdom monera that are not found in other kingdoms (3mks)
-are prokaryotic -no nucleus -no nuclear membrane -membranes excretes toxic wastes
b)Name the class to which a tick belongs (1mk) **arachnida**
c)Giving classification of the mosquito by filling in table below (4mks)

Kingdom	**Animalia**
Phylum	**Athropoda**
Class	**Insect**
Order	**diptera**

19)What is the difference in growth and development in animals as opposed to plants (1mk)
In animals growth and development is all over the body while in plants it happens only at the apicals

1. a) Active transport
b) Energy expenditure
2. a) Fine adjustment knob
b) Eye piece lens magnification time x objective lens magnification
3. a) Gill
b) - Highly vascularized to facilitate transport of respiratory gases.
- Thin to reduce diffusion distance hence faster rate of diffusion.
- Numerous to increase surface area for absorption of respiratory gases
4. a) Supply carbon (IV) oxide
b) To prevent change of composition of gases/ experiment result by respiring microbes in the soil / to prevent evaporation of soil water into the jar.
5. Water vapour accumulates in the depression of the stomata, lowering the water vapour concentration gradient, leading to lower rate of transpiration.

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6. - Defence against diseases
   - Clotting
   - Temperature regulation / distribution of heat.
7. Has villi and micro villi to increase S.A for absorption.
8. - Folded inner membrane to increase S.A for respiration
   - Matrix has respiratory enzymes to catalize respiratory reactions
9. - Lignified to provide mechanical strength / support
   - Narrow lumen for capillarity
   - Llack organelles to provide free movement of water and mineral salts
   - Has bordered pits to allow lateral movement of water and mineral salts.
10. - Blood flows rapidly under pressure in arteries while in veins it flows slowly under low pressure.
    - Transport oxygenated blood except pulmonary artery while vein transport deoxygenated blood except pulmonary vein
11. This is the oxygen required to get rid of acids that accumulates in the body tissues; when supply of oxygen is less than the demand.
12. Secrete sebum; which keeps hair and the epidermis flexible and waterproof; sebum contains antiseptic substances for protection against bacteria.
13. - Insulin
    - Glucagon
14. a) Humerus
    b) Y – deltoid ridge
    c) Hinge joint
18. a) Fused head and thorax in arthropods
    b) Organisms whose nuclei are bound by nuclei membrane
20. a) Sweep neet
    b) Total population $= \frac{\text{first capture x second capture}}{\text{marked recapture}}$
    $= \frac{400 \times 200}{80}$
    = 1000 grasshoppers
21. a) To minimize stomata exposure to environmental factors
    b) To reduce the surface area over which transpiration occurs.
23. Planktons take up the metallic industrial water; this nutrient is passed to the fish that feed on planktons; man feeds on fish and obtain these metallic wastes
24. a) Vibrio cholerae
    b) - Has two hosts to ensure it has a ready host for survival;
       - Lays many eggs to increase chances of survival
       - Eggs have protective shell to survive harsh environmental condition
       - Has thick elastic cuticle to protect it against digestive enzyme of the host
       - Has tissues tolerant to low oxygen concentration to survive in the gut / respires anaerobically.
       - Has mascular pharynx to suck digested food from host digestive intestine.
25. One male nuclei fuses with egg cell to form a zygote; the other male nuclei fuses with the polar nuclei to form a triploid endosperm.
26. a) - Chorion
       - Allantois
       - Annion
    b) Chorion
27. - Allowing more time for embryo to mature
    - Provide environmental factors such as oxygen, water and suitable temperature
    - Increase growth hormones cytokinnis / gibellerins
    - Provision of required light wavelengths
    - Scarification / weakening of testa / boiling / burning
28. a) Juvenile hormone
    b) Corpora allata (accept corpus allatum)
29. a) Metaphase I
    b) - Nuclei membrane has disappeared

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- Homologous chromosomes are at the spindle equator

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