FORM 3 BIOLOGY – MID TERM 1 (2026)

MARKING SCHEME

1. **Removing some leaves when transporting a seedling** (1 mk)

- Reduces rate of transpiration hence prevents excessive water loss.

2. **Fewer stomata on upper leaf surface** (1 mk)

- Reduces water loss since upper surface is more exposed to sunlight and wind.

3. **Adaptations minimizing transpiration**

- Sunken stomata – Trap moist air reducing diffusion gradient (1 mk)
- Leaf folding – Reduces exposed surface area (1 mk)

4. **Heart continues beating when nerves are severed**
   a)

- Heart muscle is myogenic; generates its own impulses (2 mks)

b)
i) Sympathetic nerve (1 mk)
ii) Vagus nerve (1 mk)

5. **Functions of blood other than transport** (any 2 ×1)

- Defence against disease
- Regulation of body temperature
- Blood clotting

6. **Blood groups**
   a)

- Antigen A
- Antigen B (2 mks)

b)

- Second transfusion causes agglutination/haemolysis
- Due to antibodies formed after first transfusion
- Can be fatal (3 mks)

7. **Gaseous exchange structures**

- Mosquito larva – Tracheal gills / siphon (1 mk)
- Amoeba – Cell membrane (1 mk)

- Fish – Gills (1 mk)

8. **Characteristics of respiratory surfaces** (3 ×1)

- Large surface area
- Thin
- Moist
- Well supplied with blood

9. **Factors affecting stomatal movement** (2 ×1)

- Light intensity
- Water availability
- Carbon dioxide concentration
- Temperature

10. **Advantages of breathing through nostrils** (3 mks)

- Air is warmed
- Air is moistened
- Dust and microbes trapped by hairs and mucus

11. **High RBC count at high altitude** (2 mks)

- Low oxygen concentration
- Body compensates by producing more RBCs

12. **Terms**

- Respiratory Quotient – Ratio of CO_2 produced to O_2 consumed (1 mk)
- Oxygen Debt – Extra oxygen required after exercise (1 mk)
- Basal Metabolic Rate – Minimum energy required at rest (1 mk)

13. **Economic importance**

- Caffeine – Stimulant in beverages (1 mk)
- Rubber – Making tyres, gloves (1 mk)
- Tannin – Tanning leather / dye (1 mk)

14. **Excretion in plants** (3 ×1)

- Diffusion of gases
- Storage in leaves/bark
- Loss through leaf fall

- Guttation

15. **Skin and thermoregulation** (6 mks)

- Blood vessels – Vasodilation/vasoconstriction
- Sweat glands – Produce sweat for cooling
- Hair & erector pili – Trap air / reduce heat loss

16. **Kidney table**

a)

- Proteins too large to pass through glomerulus (1 mk)

b)

- Urea concentrated due to water reabsorption (1 mk)

c)

- Glucose fully reabsorbed in tubules (1 mk)

17. **Mechanisms of excretion**

- Ultrafiltration – High pressure forces small molecules into Bowman's capsule (2 mks)
- Selective reabsorption – Useful substances reabsorbed back into blood (2 mks)