

**BIOLOGY**  
**MARKING SCHEME**  
**FORM: 4**  
**TERM 1 2025**  
**OPENER EXAMINATION**

1. (a) State **two** ways through which excessive use of pesticides may affect soil fertility (2marks)

**Change soil PH**  
**Kill soil microbes.**  
**Change soil structure**

- (b) Give **two** control measures of schistosomiasis (Bilharzia). (2marks)  
**Control fresh water snails**  
**treat the sick**  
**Treat water for domestic use**  
**use of latrines /proper waste disposal**

- (c) Name the method that would be used to estimate the population of blackjack in a garden. (1mark)

**line transect/ belt transect /total count**

2. Name the organism that;  
 (a) causes malaria . (1mark)

**Plasmodium spp**

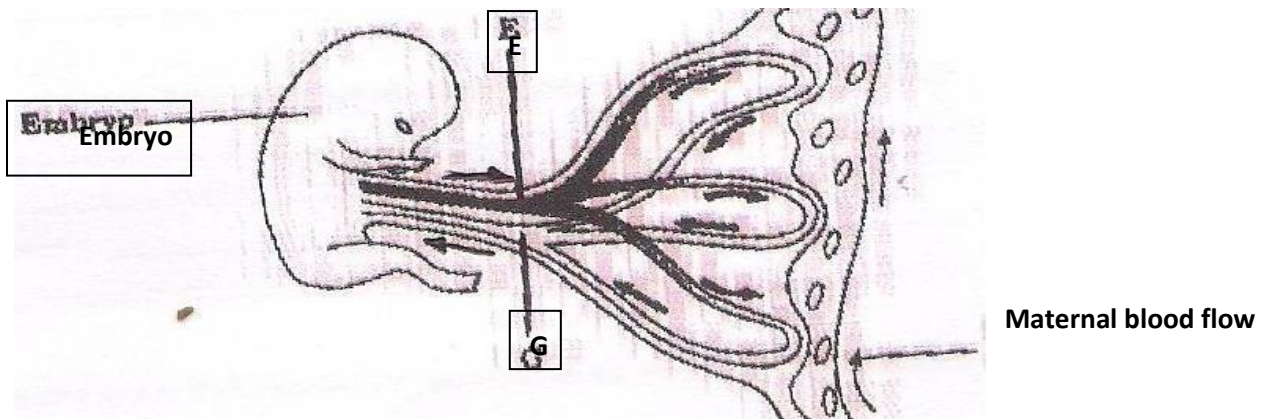
- (b) Transmits malaria . (1 mark)

**Female anopheles mosquito**

- (c) State two control measures for malaria. (2 marks)

**Use of vaccine against plasmodium**  
**Use of mosquito nets and repellents**

3. Study the diagram below and answer the questions that follows.



(a) Give the names of the parts labeled **E** and **G**

(2marks)

**E: Umbilical artery;**

**G: Umbilical vein;**

(b) Name one substance that is at high concentration in **E**.

(1mark)

**Carbon (IV) oxide / urea;**

(c) i) In which organ does this kind of exchange shown above occur?

(1mark)

**Placenta;**

ii) How is the structure you have named in c) i) above adapted to its function. (3marks)

- **Highly vascularized to create a steep concentration gradient for efficient transport materials;**

- **Has a thin membrane to reduce distance of diffusion;**

- **Numerous chorionic villi to provide large surface area for exchange of materials**

4. a) Which substance surrounds the embryo during its development.

(1mark)

**Amniotic fluid;**

b) State **one** role of the substance you have named in 4(a) above.

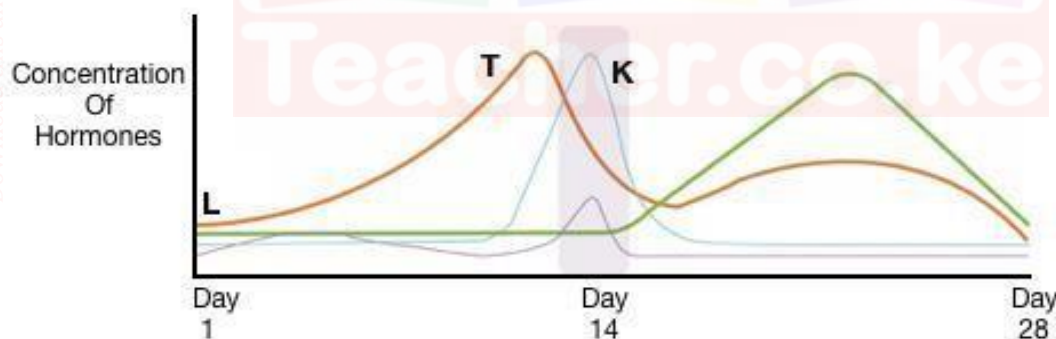
(1mark)

- **Absorb shock hence protecting the embryo against mechanical injury;**

- **Suspends the embryo providing it with support / free movement**

- **maintaining a constant moist medium temperature for growth of foetus / embryo**

5. Below is a graphical representation of the concentration of hormones involved in the menstrual cycle against time. Study it and answer the questions that follow



a) Name hormone K. (1 mark)

b) Did pregnancy occur based on the cycle above? Explain your answer. (2 marks)

**No. decrease in concentration of hormones progesterone and oestrogen**

c) Name the organ that secretes hormone T.

(1 mark)

**ovary**

d) Identify the process that occurs during the time labelled L.

(1 mark)

**Menses**

6. Name **two** types of curves obtained during measurement of growth in living things.

(2 marks)

**Sigmoid curve**

**Intermittent curve**

7. Name the chemical substances in plants that;

(3 marks)

a) Promote ripening of fruits **Ethylene;**

- b) Flowering in plants      **Florigen;**  
 c) Leaf fall in plants      **Abscissic acid;**

8. State the functions of the following parts of a germinating seed.

- a) Coleorhiza ;**protects tip of radicle**  
 b Coleoptile; **protect the tip of plumule**

9. The diagram below represents a stage of growth in two different seeds.



- a) Identify the type of germination exhibited by seedlings A and B. (2 marks)  
 Seedling A      **epigeal**  
 Seedling B      **hypogeal**

b) Distinguish between the two types of germination stated in (a) above. (4 marks)

Epigeal germination.;Hypocotyls elongates rapidly than epicotyls Hypocotyl curves and pushes upwards through the soil protecting the delicate shoot tip,bringing cotyledon above the ground .. :  
 Hypogeal germination; epicotyl elongates faster than hypocotyl,cotyledons remain below the soil surface after germination;

c)State the role of oxygen during germination. (1 mark)

**Oxidation of food substances**

d) Account for the loss of weight in cotyledons in germinating seeds.(1 mark)

**Food stored in the cotyledons is hydrolysed and used to produce energy during germination;**

10. Define seed dormancy. (1mark)

What causes seed dormancy in a seed. (2marks)

**Immature embryo/ not yet fully developed;**

**Presence of chemical inhibitors that inhibit germination in seeds; Acc correct example abscisic.**

**Impermeable seed coats to air and water; (Rej. Impermeable seed coat alone)**

**Presence of germination inhibitors;**