

| Question Number | | Sub-section | | Mark | Answer | Accept | Neutral answer | Do not accept | | | | | | | | |
|-----------------|--|-------------|--|------|--|---|--|--------------------------|------------------------------|---|----------------------|---|-------------------|--|--|---|
| 6 | 1 | (a) | | 3 | <table border="1"> <thead> <tr> <th>Field</th> <th>Signs of mineral nutrient deficiencies shown by the wheat plants</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>poor growth/ reduces growth;</td> </tr> <tr> <td>B</td> <td>yellowing of leaves;</td> </tr> <tr> <td>C</td> <td>poor root growth;</td> </tr> </tbody> </table> | Field | Signs of mineral nutrient deficiencies shown by the wheat plants | A | poor growth/ reduces growth; | B | yellowing of leaves; | C | poor root growth; | Stunted growth/ reduces growth of stems and roots | | Reduces growth of stems/ reduces growth of roots |
| Field | Signs of mineral nutrient deficiencies shown by the wheat plants | | | | | | | | | | | | | | | |
| A | poor growth/ reduces growth; | | | | | | | | | | | | | | | |
| B | yellowing of leaves; | | | | | | | | | | | | | | | |
| C | poor root growth; | | | | | | | | | | | | | | | |
| | | (b) | | 1 | {Spread/ spray/use/ add} { <u>NPK/ fertilizer/ slurry/ manure</u> }; | Green manure/ clover/ legume crops being ploughed in | | Fertilising the plant | | | | | | | | |
| | | Total Mark | | 4 | | | | | | | | | | | | |

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|-----------------|---|-------------|--|-------|--|--|----------------|---------------|
| 7 | 2 | (a) | | 2 | A choroid; B optic nerve; | Phonetic spelling B: sclera/ sclerotic | | |
| | | (b) | | Max 4 | <ul style="list-style-type: none"> In Diagram 1 the eye is in dim light; <u>iris</u> (muscle) makes <u>pupil larger</u>; to allow more light into the eye; (In Diagram 2) the eye is in bright light and the reverse has happened (OWTTE); OR <ul style="list-style-type: none"> In Diagram 2 the eye is in bright light; <u>iris</u> (muscle) makes <u>pupil smaller</u> ; to reduce the amount of light entering the eye; In Diagram 1 the eye is in dim light and the reverse has happened (OWTTE); | | | |
| | | Total Mark | | 6 | | | | |

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| 8 | 3 | (a) | i | 1 | B A D C | B in the top row, A in the second, D in the third C in the fourth | | |
| | | | ii | 1 | To prevent {entry / exit} of bacteria/ contamination by bacteria; | micro-organisms/ fungi/ microbes as alternative to bacteria | | |
| | | (b) | i | 3 | PLATE 1 10 °C; PLATE 2 4 °C; PLATE 3 35 °C; | | | |
| | | | ii | 1 | 7; | | | 7 colonies |
| | | | iii | 2 | bacteria on the inoculating loop would not have been killed/ loop would not have been sterilised; therefore the agar would have {bacteria/ micro-organisms} growing on it which would have <u>not come from the milk</u> / contaminated with bacteria <u>not from the milk</u> ; OR the loop is flamed to ensure all micro-organisms on it are killed; only bacteria from the milk are grown; | micro-organisms/ fungi/ microbes as alternative to bacteria | | Loop not clean |
| Total Mark | | | | 8 | | | | |

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|-----------------|----|--------------|---|
| FT | HT | | |
| 9 | 4 | 6 QWC | <p><i>Indicative content:</i></p> <ul style="list-style-type: none"> • platelets form a blood clot • which seals the wound/ stops the bleeding • to prevent entry of microbes/bacteria • white blood cells/phagocytes {ingest/engulf} microbes/bacteria NOT destroy • white blood cells/lymphocytes produce antibodies* • which inactivate certain bacteria/microbes/viruses • white blood cells/lymphocytes produce antitoxins* • which inactivate/counteract toxins released by bacteria/microbes <p>*Needed for top band</p> <p>5-6 marks The candidate constructs an articulate, integrated account correctly linking relevant points, such as those in the indicative content, which shows sequential reasoning. The answer fully addresses the question with no irrelevant inclusions or significant omissions. The candidate uses appropriate scientific terminology and accurate spelling, punctuation and grammar.</p> <p>3-4 marks The candidate constructs an account correctly linking some relevant points, such as those in the indicative content, showing some reasoning. The answer addresses the question with some omissions. The candidate uses mainly appropriate scientific terminology and some accurate spelling, punctuation and grammar.</p> <p>1-2 marks The candidate makes some relevant points, such as those in the indicative content, showing limited reasoning. The answer addresses the question with significant omissions. The candidate uses limited scientific terminology and inaccuracies in spelling, punctuation and grammar.</p> <p>0 marks The candidate does not make any attempt or give a relevant answer worthy of credit.</p> |
| Total Mark | | 6 | |

| Question Number | | Sub-section | | Mark | Answer | Accept | Neutral answer | Do not accept |
|-----------------|----------|-------------|--|------|--|--------|--|--|
| FT | HT | (a) | | 2 | A pulmonary artery; B vena cava; | | anterior/ posterior/ inferior/superior | |
| | 5 | (b) | | 4 | <ul style="list-style-type: none"> • blood flows between left and right ventricles; • {both sides of heart/both ventricles} contain a <u>mixture of oxygenated and deoxygenated</u> blood (OWTTE)/left ventricle will contain partially oxygenated blood; • <u>blood {sent to body/ in the aorta}</u> will {be <u>partially oxygenated/</u> have less oxygen than it should have}; • resulting in not enough oxygen supplied to <u>cells/tissues/organs/muscles</u>; | | | Blood leaving left ventricle/going to the body is deoxygenated |
| | | Total Mark | | 6 | | | | |

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| FT | HT | Sub-section | | Mark | Answer | Accept | Neutral answer | Do not accept |
| | 6 | (a) | | 1 | <u>controls</u> {loss of water /transpiration} and allows {gases/correctly named gas} to pass in or out ; | | | |
| | | (b) | | 1 | Guard cells; | | | |
| | | (c) | | 1 | To prevent loss of too much water/ reduces loss of water; | | | Stops loss of water |
| | | (d) | i | 1 | Decrease/ less time; | | | |
| | | | ii | 1 | Increase/ more time; | | | |
| | | Total Mark | | 5 | | | | |

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| FT | HT | | | | | | | |
| | 7 | (a) | | 1 | <u>Decrease</u> in water (in blood) / low water content (of blood)/ increase in concentration of blood; | | | Lack of water |
| | | (b) | | 3 | More water (re)absorbed; Into the {blood/ capillaries}; Urine {becomes more concentrated/ contains less water}; | | Smaller volume | |
| | | Total Mark | | 4 | | | | |

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| FT | HT | | | | | | | |
| | 8 | (a) | i | 2 | X = <u>Renal</u> artery; Y = <u>Renal</u> vein; | Afferent/ efferent | | |
| | | | ii | 1 | Clots would clog the pump/ stop blood flow/ prevent blockage; | | | |
| | | | iii | 1 | Diffusion/ ultrafiltration; | | | |
| | | | iv | 1 | {maintains/ increases} concentration gradient/ allows { <u>maximum/greatest</u> } rate of diffusion or removal of waste; | | | |
| | | (b) | | 1 | Have a kidney transplant; | peritoneal dialysis | | |
| | | Total Mark | | 6 | | | | |

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| FT | HT | | | | | | | |
| | 9 | (a) | i | 1 | For comparison/ some regions have higher populations than others; | | | |
| | | | ii | 2 | 50 – 8 = 42; 42/50 x 100 = 84%; Correct answer = 2 marks | | | |
| | | | iii | 1 | {Higher number of <u>deaths per 100 000</u> / higher percentage die} (in Africa); | ORA | | |
| | | (b) | | 4 | Vaccine contains the antigen; Causes memory cells to be produced; For future invasions of bacteria; by { <u>rapid</u> production/ production of <u>large numbers</u> } of antibodies; | | | |
| | | (c) | | 1 | <u>Bacteria</u> develop <u>resistance</u> to <u>antibiotics</u> / fewer people vaccinated; | | overuse of antibiotics/ not completing course of antibiotics | Bacteria resistant to vaccine/ Bacteria are immune to antibiotics |
| Total Mark | | | | 9 | | | | |

| Question Number | | Mark | Answer |
|-------------------|-----------|----------|---|
| FT | HT | | |
| | 10 | 6 QWC | <p>Indicative content</p> <ul style="list-style-type: none"> • rapid involuntary protective response (to a stimulus) • light is the stimulus • retina is the receptor • sensory neurone sends the impulse to the relay neurone (Spinal cord = neutral) • via a synapse • impulse passes along the motor neurone • to the <u>muscle of the eyelid</u> which is the effector <p>5-6 marks The candidate constructs an articulate, integrated account correctly linking relevant points, such as those in the indicative content, which shows sequential reasoning. The answer fully addresses the question with no irrelevant inclusions or significant omissions. The candidate uses appropriate scientific terminology and accurate spelling, punctuation and grammar.</p> <p>3-4 marks The candidate constructs an account correctly linking some relevant points, such as those in the indicative content, showing some reasoning. The answer addresses the question with some omissions. The candidate uses mainly appropriate scientific terminology and some accurate spelling, punctuation and grammar.</p> <p>1-2 marks The candidate makes some relevant points, such as those in the indicative content, showing limited reasoning. The answer addresses the question with significant omissions. The candidate uses limited scientific terminology and inaccuracies in spelling, punctuation and grammar.</p> <p>0 marks The candidate does not make any attempt or give a relevant answer worthy of credit.</p> |
| Total Mark | | 6 | |