

Name of the Student: _____

Max. Marks : 26 Marks

Time : 26 Minutes

Mark Schemes

Q1.

- (a) 1. Exopeptidases hydrolyse peptide bonds at the ends of a polypeptide/protein
AND endopeptidases hydrolyse internal peptide bonds within a polypeptide/protein;

Reference to 'hydrolyse' required at least once

2. More 'ends'

OR

More surface area;

Accept even if via action of incorrect enzyme

2

- (b) 1. Actin/myosin/tropomyosin;
Accept troponin
Accept ATP synthase/hydrolase

2. Antibodies;
Accept immunoglobulins
Accept lysozyme

2

- (c) Whey (no mark) as it:

1. Is absorbed quicker

OR

It has a faster/higher/greater/the highest/the greatest/the fastest rate of absorption;

2. Still stimulates/increases protein synthesis (even if lower than casein);

3. Prevents/inhibits/limits breakdown of body proteins;

4. **Significantly** more becomes body protein;

*If student selects casein allow 1 mark **only** for 'as it stimulates a higher rate of protein synthesis'*

Accept use of data to show differences

3 max

[7]

Q2.

- (a) 1. Circular muscle contracts;
2. Radial muscle relaxes;
Accept, for one mark 'both muscles contract' or 'both muscles relax' as names of muscles are in the diagram.
Reject muscles constrict.

2

- (b) 1. High (visual) acuity;
2. (Each) cone is connected to a single neurone;
Accept no retinal convergence.
Accept 'bipolar/nerve cell' for neurone.
3. (Cones send) separate (sets of) impulses to brain;
Accept 'optic nerve' for brain.
Reject 'signals', 'messages' for 'impulses'.
Accept 'action potential'.

3

- (c) 1. Correct answer of 0.6 (%) = **2 marks**;;
Ignore any numbers after 0.6, 2.58, 2.6 and after 0.43.
2. Incorrect answer but shows number sequence 7065 / 7068 / 7069 / (ignore position of decimal point) = **1 mark**

OR

Final answer number sequence has 64 / 65 (ignore preceding zeros, numbers that follow and position of decimal point) = **1 mark**

OR

Final answer is 2.58 / 2.6 (%) = **1 mark**

OR

Final answer of 0.43 (%) = **1 mark**;

2

- (d) 1. High (visual) sensitivity;
Accept retinal convergence.
2. Several rods connected to a single neurone;
Accept 'bipolar/nerve cell' for neurone
Accept 2, 'many' or
3. Enough (neuro)transmitter to reach/overcome threshold

OR

Spatial summation to reach/overcome threshold; more for 'several'

Reject 'signals', 'messages' for 'impulses'.

Accept named neurotransmitter.

Accept depolarisation, 'action potential' or 'generator potential' for 'to reach threshold'.

Generator potentials combine to reach threshold/ depolarisation/action potential/generator potential.

3

[10]

Q3.

- (a)
1. Light/I band only actin;
 2. H zone/band only myosin;
 3. Darkest/overlapping region actin **and** myosin;
*Accept any suitable descriptions that distinguishes these regions e.g. 'white band' for 1, 'light grey' for 2 and 'dark grey' for 3.
Ignore references to A band.*

3

- (b)
1. Use (distilled) water and creatinine solution to produce dilutions (series);
Accept description of dilutions (series).
 2. Addition of (creatinine-)detecting solution (to each solution);
The addition of a known/specific volume of (creatinine-)detecting solution = 2 marks.
 3. Using a known/specified/constant volume of a solution (e.g. diluted creatinine solution);
The addition of a known/specific volume of (creatinine-)detecting solution = 2 marks.
 4. Record absorbance/transmission of solution/s using a colorimeter;
*Reject calorimeter. Ignore details provided on 'blank'.
Accept description of absorbance or transmission.*
 5. Plot dilution/concentration of (creatinine) solution against absorbance/transmission;
*Accept absorption for 'absorbance'.
Accept description of absorbance or transmission.*

4 max

- (c)
1. Use same volumes of solutions as used in producing (calibration curve)

OR

Add (creatinine-)detecting solution (to urine);
*Ignore 'add indicator' on its own.
Ignore calorimeter in this part of the question.*

2. Read off (creatinine) concentration against absorbance/transmission (value) obtained;
*Ignore 'line of best fit'.
Accept 'compare' for 'read off'.*

2

[9]