Mark Scheme (Final)

Summer 2023

Pearson Edexcel International Advanced Subsidiary Level in Biology (WBI11)
Paper 01
Unit 1: Molecules, Diet, Transport and Health

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General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.
- Mark schemes will indicate within the table where, and which strands of QWC, are being assessed. The strands are as follows:

  i) ensure that text is legible and that spelling, punctuation and grammar are accurate so that meaning is clear
  ii) select and use a form and style of writing appropriate to purpose and to complex subject matter
  iii) organise information clearly and coherently, using specialist vocabulary when appropriate.

Mark scheme notes

Underlying principle

The mark scheme will clearly indicate the concept that is being rewarded, backed up by examples. It is not a set of model answers.

1. Mark scheme format

1.1 You will not see 'wtte' (words to that effect). Alternative correct wording should be credited in every answer unless the MS has specified specific words that must be present. Such words will be indicated by underlining e.g. '<u>resonance</u>'

1.2 Bold lower case will be used for emphasis e.g. '**and'** when two pieces of information are needed for 1 mark.

1.3 Round brackets ( ) indicate words that are not essential e.g. "(hence) distance is increased".

1.4 Square brackets [ ] indicate advice to examiners or examples e.g. [Do not accept gravity] [ecf].

2. Unit error penalties

2.1 A separate mark is not usually given for a unit but a missing or incorrect unit will normally mean that the final calculation mark will not be awarded.

2.2 This does not apply in 'show that' questions or in any other question where the units to be used have been given, for example in a spreadsheet.

2.3 The mark will not be awarded for the same missing or incorrect unit only once within one clip in epen.

2.4 Occasionally, it may be decided not to insist on a unit e.g the candidate may be calculating the gradient of a graph, resulting in a unit that is not one that should be known and is complex.

2.5 The mark scheme will indicate if no unit error is to be applied by means of [no ue].

3. Significant figures

3.1 Use of too many significant figures in the theory questions will not be prevent a mark being awarded if the answer given rounds to the answer in the MS.

3.2 Too few significant figures will mean that the final mark cannot be awarded in 'show that' questions where one more significant figure than the value in the question is needed for the candidate to demonstrate the validity of the given answer.

3.3 The use of one significant figure might be inappropriate in the context of the question e.g. reading a value off a graph. If this is the case, there will be a clear indication in the MS.

3.4 The use of g = 10 m s^{-2} or 10 N kg^{-1} instead of 9.81 m s^{-2} or 9.81 N kg^{-1} will mean that one mark will not be awarded. (but not more than once per clip). Accept 9.8 m s^{-2} or 9.8 N kg^{-1}

3.5 In questions assessing practical skills, a specific number of significant figures will be required e.g. determining a constant from the gradient of a graph or in uncertainty calculations. The MS will clearly identify the number of significant figures required.

4. Calculations

4.1 Bald (i.e. no working shown) correct answers score full marks unless in a 'show that' question.

4.2 If a 'show that' question is worth 2 marks. then both marks will be available for a reverse working; if it is worth 3 marks then only 2 will be available.

4.3 **use** of the formula means that the candidate demonstrates substitution of physically correct values, although there may be conversion errors e.g. power of 10 error.

4.4 **recall** of the correct formula will be awarded when the formula is seen or implied by substitution.

4.5 The mark scheme will show a correctly worked answer for illustration only.

5. Quality of Written Communication

5.1 Indicated by QoWC in mark scheme. QWC – Work must be clear and organised in a logical manner using technical wording where appropriate.

5.2 Usually it is part of a max mark, the final mark not being awarded unless the QoWC condition has been satisfied.

6. Graphs

6.1 A mark given for axes requires both axes to be labelled with quantities and units, and drawn the correct way round.

6.2 Sometimes a separate mark will be given for units or for each axis if the units are complex. This will be indicated on the mark scheme.

6.3 A mark given for choosing a scale requires that the chosen scale allows all points to be plotted, spreads plotted points over more than half of each axis and is not an awkward scale e.g. multiples of 3, 7 etc.

6.4 Points should be plotted to within 1 mm.

- Check the two points furthest from the best line. If both OK award mark.
- If either is 2 mm out do not award mark.
- If both are 1 mm out do not award mark.

- If either is 1 mm out then check another two and award mark if both of these OK, otherwise no mark.
  For a line mark there must be a thin continuous line which is the best-fit line for the candidate's results.

Question number	Answer	Additional guidance	Mark
1(a)(i)	U A C G G C A A		(1)

Question number	Answer	Additional guidance	Mark
1(a)(ii)	• (DNA) transcription (1)	**DO NOT ACCEPT** translation transcription followed by translation reverse transcription	(1)

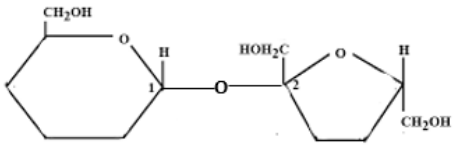
Question number	Answer	Additional guidance	Mark
1(a)(iii)	• RNA polymerase (1)	**ACCEPT** rna polymerse mRNA polymerase DNA-directed RNA polymerase DNA-dependent RNA polymerase **IGNORE** abbreviations e.g. RNAP, RNApol **DO NOT ACCEPT** polymerase / DNA polymerase / helicase / ligase / reverse transcriptase	(1)

Question number	Answer	Additional guidance	Mark
1(b)	An answer that makes reference to three of the following points including at least one similarity: Similarities: • both consist of {(RNA mono) nucleotides / ribose sugar / U, A, C and G / phosphodiester bonds} (1) • both are single-stranded (1) Differences: • mRNA has <u>codons</u> and tRNA has <u>anticodons</u> (1) • mRNA does not have hydrogen bonds but tRNA does (1) • mRNA does not have an amino acid binding site but tRNA does (1)	DO NOT PIECE TOGETHER ACCEPT tRNA has more secondary structure mRNA is {linear / straight / a chain} but tRNA {is folded / has loops / clover leaf shaped} IGNORE tRNA carries an amino acid	(3)

Question number	Answer	Mark
2(a)	The only correct answer is C *A is incorrect because the valves close before ventricular systole not during it* *B is incorrect because the valves close before ventricular systole not during it* *D is incorrect because the valves close before ventricular systole not after it*	(1)

Question number	Answer	Additional guidance	Mark
2(b)	• Accept any value up to 3 decimal places between 0.7 and 0.76 inclusive (1)	**DO NOT ACCEPT** any other values	(1)

Question number	Answer	Additional guidance	Mark
2(c)	An explanation that makes reference to the following points: • increase in volume {when (left) atrium contracts (squeezing its blood into ventricle) / during atrial systole} (1) • decrease in volume {during ventricular systole / when ventricles contract / when blood is pumped out (of aorta)} (1) • (some) increase in volume {during (cardiac / ventricular) diastole / when ventricle starts to fill} (1)	**IGNORE** time references **NB** candidates may put these points in a different order **ACCEPT** high volume during atrial systole etc **ACCEPT** low volume during ventricular systole etc	**(3)**

Question number	Answer	Additional guidance	Mark
3(a)(i)	• O joined to C1 on glucose and C2 on fructose by covalent bond (1)	 **ACCEPT** bonds not touching carbons provided it is clear where they are supposed to be attached to solid or dotted lines for covalent bond **DO NOT ACCEPT** other groups added to C1 or C2 **IGNORE** water shown other groups added to rest of molecule	(1)

Question number	Answer	Additional guidance	Mark
3(a)(ii)	An answer that makes reference to the following points: • $C_{12}H_{22}O_{11}$ (1) • H_2O (1)	**ACCEPT** numbers that are not subscript numbers **IGNORE** if not written as part of the equation	(2)

Question number	Answer	Additional guidance	Mark
3(b)(i)	• sucrose contains {the same number of / one } fructose (1)	**ACCEPT** ratio of sucrose to fructose is 1 : 1 as the concentration of sucrose increases so does the (concentration of) fructose the more sucrose there is the more fructose there will be more fructose for the chemical to bind to the same amount of chemical binds to each fructose **DO NOT ACCEPT** glucose	(1)

Question number	Answer	Additional guidance	Mark
3(b)(ii)	• the test is not sensitive enough / the colour intensity is too low (1)	**ACCEPT** a certain concentration of {<u>fructose / sucrose</u>} is necessary for the {colour to be visible / colour change} equipment is not sensitive enough colour change visible above concentrations 50 μg dm^{-3} sucrose **DO NOT ACCEPT** glucose	**(1)**

Question number	Answer	Additional guidance	Mark
3(b)(iii)	• the chemical (only) binds to fructose / there is no fructose in either maltose or lactose (1)	**ACCEPT** chemical cannot bind to maltose or lactose	**(1)**

Question number	Answer	Mark
4(a)(i)	The only correct answer is D *A is incorrect because the magnification is* 2.67×10^{1} *B is incorrect because the magnification is* 2.67×10^{1} *C is incorrect because the magnification is* 2.67×10^{1} *Magnification = 48 mm ÷ 1.8 mm =* $26.66667 = 2.67 \times 10^{1}$	(1)

Question number	Answer	Mark
4(a)(ii)	The only correct answer is B *A is incorrect because the surface area is* 1.8π *C is incorrect because the surface area is* 1.8π *D is incorrect because the surface area is* 1.8π $SA = 2\pi \times 0.5 \times 1.8 = 1.8\pi$	(1)

Question number	Answer	Additional guidance	Mark
4(a)(iii)	• volume calculated (1) • 1 : 0.3 / 1 : 0.28 (1)	$\pi \times 0.6 \times 0.6 \times 1.8 = 0.648\pi$ **ACCEPT** 1.944 / 2.03575203952 **NB** if clearly used a non-calculator value for π check the rounding before awarding **ACCEPT** 4 : 1 / 3.5 : 1 / 3.55 : 1 (3.5493827160) **DO NOT ACCEPT** 3.6 : 1 **ACCEPT** CEs for $V = 2.592\pi$ 1 : 1.1 / 1 : 1.13 0.9 : 1 / 0.89 : 1 Correct bald answer = 2 marks Correct bald CE = 1 mark	**(2)**

Question number	Answer	Additional guidance	Mark
4(b)	An explanation that makes reference to three of the following points: • oxygen {dissolved / present} in the water (1) • large surface area (to volume ratio) for fast {gas exchange / diffusion (of gases)} (1) • two {layers (of cells) / cells thick} so {short diffusion distance (for gases) / fast gas exchange} (1) • {tentacles / body} move the water around to maintain (oxygen) concentration gradient (1)	**IGNORE** efficient and easy throughout **NB** penalise refs to {lungs / alveoli / blood / vessels / etc} within an awardable mp 2, 3 or 4 once **ACCEPT** more diffusion **IGNORE** hollow body / tentacles **ACCEPT** thin layer of cells so ..... **ACCEPT** other terms which clearly refer to tentacles e.g. tails, legs, fingers	**(3)**

Question number	Answer	Additional guidance	Mark
5(a)	An explanation that makes reference to the following points: • because platelets {contain / release} thromboplastin (1) • thromboplastin results in the formation of thrombin from prothrombin (1)	**IGNORE** descriptions of plaque formation prior to release of thromboplastin by platelets **IGNORE** endothelial cells	**(2)**

Question number	Answer	Additional guidance	Mark
5(b)	• person bleeds {too easily / uncontrollably / internally / excessively} (1)	**Examiners will need to check any other risks but not accept just side effects or symptoms** **ACCEPT** (severe / frequent) bruising (prolonged / frequent) nose bleeds heavy periods (in women) liver damage kidney damage **IGNORE** named side effects	**(1)**

Question number	Answer	Mark
5(c)(i)	The only correct answer is D *A is incorrect because there are 96 bases for 32 amino acids plus a stop codon* *B is incorrect because there are 96 bases for 32 amino acids plus a stop codon* *C is incorrect because there are 96 bases for 32 amino acids plus a stop codon*	(1)

Question number	Answer	Additional guidance	Mark
5(c)(ii)	An explanation that makes reference to the following points: • because (if the active site is blocked) thrombin will not be able to convert fibrinogen into fibrin (1) • without fibrin, {platelets / blood cells} will not get trapped (forming a blood clot) (1)	NB must be an idea of what will not happen for 2 marks to be awarded **ACCEPT** less **ACCEPT** without fibrin, {mesh won't form / less mesh will form}	(2)

Question number	Answer	Additional guidance	Mark
5(c)(iii)	An explanation that makes reference to two of the following points: • variegin binds to the <u>active site</u> of thrombin / an enzyme substrate complex is formed / thrombin lowers the activation energy (1) • therefore the peptide bonds are broken (by thrombin) (1) • by hydrolysis / by a hydrolysis reaction (1)	**ACCEPT** ESC for enzyme substrate complex	**(2)**

Question number	Answer	Additional guidance	Mark
5(c)(iv)	An answer that makes reference to two of the following points: • (overall) variegin results in less (mass) blood clot than {drug H / the other anticoagulant} (1) • there is less variation in the size of the blood clot (in patients treated) with variegin (1) • cannot comment on the effectiveness of {drugs / variegin} compared with no drug as no control (1) • cannot comment on {significance / validity} of data as no statistical analysis (1)	**ACCEPT** converse throughout **ACCEPT** reduces blood clot compared to drug H prevents blood clot better than drug H more effective than drug H (in reducing blood clot) **ACCEPT** smaller range **ACCEPT** cannot comment on effectiveness of drug H as no control **ACCEPT** no mean <u>and</u> error bars shown not <u>valid</u> as small sample size	**(2)**

Question number	Answer	Mark
6(a)	The only correct answer is C *A is incorrect because only statement 1 is incorrect as proteins contain oxygen as well* *B is incorrect because only statement 1 is incorrect as proteins contain oxygen as well* *D is incorrect because only statement 1 is incorrect as proteins contain oxygen as well*	(1)

Question number	Answer	Mark
6(b)	The only correct answer is D *A is incorrect because there are carbon – carbon double bonds in an unsaturated fatty acid* *B is incorrect because there are carbon – carbon double bonds in an unsaturated fatty acid* *C is incorrect because the ratio is higher ie fewer hydrogens for the same number of carbons*	(1)

Question number	Answer	Additional guidance	Mark
6(c)	• haemoglobin (1)	**Examiners will need to check any other answers** **ACCEPT** myoglobin, leghaemoglobin, neuroglobin, transferrin, ferritin, ferredoxin, cytochrome, catalase, peroxidase **IGNORE** Hb haem group	**(1)**

Question number	Answer	Additional guidance	Mark
6(d)	An explanation that makes reference to the following points: • because antioxidants reduce free radicals (1) • therefore {cell damage / damage to lining of blood vessels / oxidative stress} will be {reduced / prevented} (1) • (less cell damage / antioxidants) {reduce/ prevent} {plaque / atheroma} formation (due to decreased free radicals) (1) • (antioxidants / less plaque) reduce {cardiovascular disease / CVD / heart disease / heart attack / atherosclerosis / stroke} (1)	**NB ACCEPT** converse of mps 2, 3 and 4 i.e. what free radicals do **ACCEPT** neutralise / donate electrons to / break down / stabilise **ACCEPT** reduces cholesterol build up	**(4)**

Question number	Answer	Additional guidance	Mark
6(e)(i)	• 2.9 (1)	**ACCEPT** × 2.9 / 2.9 × / 2.9 times **DO NOT ACCEPT** 2.90 or any other value	**(1)**

Question number	Answer	Additional guidance	Mark
6(e)(ii)	• 180 / 1800 / 95 / 94.7 / 94.74 (%) (1)		**(1)**

Question number	Answer	Additional guidance	Mark
6(e)(iii)	An answer that makes reference to three of the following points: • different organisms contain different levels of antioxidant activity (1) • (overall) plant eating organisms have more antioxidant activity (than animal eating organisms) (1) • (overall) insects have more antioxidant activity (than arachnids) (1) • there is more variation in the antioxidant activity in plant eating organisms (than animal-eating organisms) (1)	**ACCEPT** converse Accept AO **ACCEPT** the error bars are larger in the plant eaters	**(3)**

Question number	Answer	Additional guidance	Mark
7(a)	An explanation that makes reference to the following points: • because (both) parents could be {carriers of / heterozygous for} {the disorder / phenylketonuria} (1) • all possible genotypes (of offspring) {shown in diagram / stated} (1) • therefore there is the possibility that the unborn child could be {homozygous recessive / have both recessive alleles} (1) • credit a reason for parents wanting to have the test (1)	**NB** must be an attempt at genetic diagram for full marks to be awarded **ACCEPT** from a genetic diagram **DO NOT ACCEPT** different letters used for the different alleles unless stated sex linkage **CE** from mp 1 for mps 2, 3 and 4 **ACCEPT** if indicated on the diagram **ACCEPT** if indicated on the diagram e.g. do not want to risk having a child with PKU want time to prepare for a child with PKU because there is a history of PKU in the family so there is risk of the child having PKU they know that {one / both} of them are carriers so there is a risk of the child having PKU so that an unaffected embryo can be selected **DO NOT ACCEPT** abortion / termination / other post-natal decisions / choosing to have a child or not **IGNORE** making an informed decision	(4)

Question number	Answer	Mark
*7(b)	**Blood tests** • most women would have a blood test • similar percentage for all four disorders • probably because it would not harm the unborn child • but some women may not want to find out if they have a genetic disorder • it would not take into account the genetics of the father **Amniocentesis** • about two thirds of the women said that they would have amniocentesis • similar percentage for all four disorders • fewer women said yes to this question than agreed to have a blood test • probably because they wanted to find out if their unborn child was affected • so they could make a decision on whether to keep the unborn child or not • the more debilitating the disease the more women prepared to take the risk of amniocentesis causing an abortion • amniocentesis can cause abortion of the unborn child • and some women must have felt that this was {too great a risk / unethical} • amniocentesis can give false negative and false positive results **Termination** • fewer women said that they would have a termination than were prepared to have the other procedures • fewer said yes to disorder B and C than A and D because B and C are treatable • more women said that they would have a termination if disorder A was diagnosed as this can be lethal • the more debilitating the disease the more likely the women were to have a termination because {do not want their child to suffer / cannot afford the healthcare} • some women may say no to a termination for religious or ethical reasons	(6)

Level 1 : description of the data with an attempt to discuss why responses are different

1 mark = some of the data described
2 marks = some of the data described with one discussion point made

Level 2 : discussion of some of the data

3 marks = two discussion points made that may be limited to one question
4 marks = two discussion points made about two of the questions

Level 3 : discussion of data

5 marks = responses to the three questions for all the procedures discussed
6 marks = plus at least one reason given for the different responses to a question depending on the disorder

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Question number	Answer	Mark
8(a)	The only correct answer is A *B is incorrect because age is not influenced by lifestyle = 1* *C is incorrect because age, is not influenced by lifestyle = 1* *D is incorrect because age is not influenced by lifestyle = 1*	(1)

Question number	Answer	Mark
*8(b)	**Aspect 1 - Explanation of factors listed:** • as age increases so does the risk because {arteries stiffen / increase in time for other risk factors} • high blood pressure causes damage to the endothelial lining of the arteries which triggers plaque formation • smoking raises blood pressure • the more cholesterol in the blood the more for plaque build up • HDL levels allow calculation of the HDL : LDL ratio which affects the risk of CVD **Aspect 2 - Explanation of factors not listed:** • high salt increases blood pressure / excessive alcohol reduces liver metabolism of cholesterol / low fibre increases stool transit time / antioxidants reduce endothelial damage so plaque not triggered • high mass / BMI increases strain on heart • lack of exercise results in a less healthy heart and may influence mass • men are at a higher risk until the woman goes through menopause • family history as {genetic predisposition / family members who have had CVD} increases risk • LDL / saturated fats increase cholesterol available to be deposited in the arteries • stress as this increases blood pressure • number of cigarettes as this affects the {damage / blood pressure} **Aspect 3 – Explaining / comparing effectiveness of RAC-1 and RAC-2:** • RAC-1 missing information on HDL cholesterol and RAC-2 missing information on smoking because they are both important risk factors – piece together • RAC-1 possibly more effective as it includes smoking • both are missing other important factors therefore {will not be accurate / calculation will be an underestimate} • effectiveness depends on accurate responses • people may not know their {cholesterol / HDL / blood pressure} so guess	(6)

Level 1 : some explanation for any aspect(s)

1 mark = simple description
2 marks = 1 explanation

Level 2 : explanations covering more than one of the aspects

3 marks = 2 explanations
4 marks = 3 explanations

Level 3 : detailed explanations covering all three aspects of the question

5 marks = 3 explanations
6 marks = 4 explanations

Question number	Answer	Additional guidance	Mark
8(c)(i)	An explanation that makes reference to two of the following points: • calculator does not include {number of cigarettes / how long person has smoked} • a person {may not know / have guessed} their {blood pressure / cholesterol level / HDL level} (1) • (other) {risk factors / named risk factor} not on calculator (1) • their {LDL levels / LDL : HDL ratio} may be very high (1)	**ACCEPT** people {underestimate / guess / lie} about {the number of cigarettes they smoke / how long they have smoked} **ACCEPT** a person may have estimated their {blood pressure / cholesterol level / HDL level} **ONLY** if it is clear that the word estimate has been used as an alternative to guess	**(2)**

Question number	Answer	Additional guidance	Mark
8(c)(ii)	An answer that makes reference to two of the following points: • a person may not know all the information (1) • a person may have a high risk condition already (1) • person {cannot use the technology / do not have access to the internet} (1)	**ACCEPT** blood pressure, total cholesterol, HDL **ACCEPT** named condition e.g. CVD, diabetes, obesity, genetic predisposition, family history of CVD, disease that increases risk **IGNORE** CVD caused by genes	**(2)**

Question number	Answer	Additional guidance	Mark
8(c)(iii)	• CVD takes a while to develop / lifestyle may change (as the person gets older) / age affects the risk (1)	**ACCEPT** named example of factor that might change	**(1)**

Question number	Answer	Mark
9(a)(i)	**The only correct answer is B** *A is incorrect because Q is the strict osmoconformer* *C is incorrect because R is the osmoregulator* *D is incorrect because Q is the strict osmoconformer*	**(1)**

Question number	Answer	Additional guidance	Mark
9(a)(ii)	An explanation that makes reference to three of the following points: • so that {no (net) / little / not much} <u>osmosis</u> (of water) will occur (1) • (do not want water to leave) otherwise cell will {dehydrate / shrink} (1) • (do not want water to enter) otherwise cell will {swell / burst} (1) • {energy / ATP} is not used in regulating solute concentrations (1)	**ACCEPT** no movement (of water) as no <u>osmotic effect</u> **IGNORE** refs to water concentration **IGNORE** flaccid **IGNORE** turgid / plasmolysis **NB**. eg 'no risk of cells bursting due to <u>osmosis</u>' = 2 marks	**(3)**

Question number	Answer	Additional guidance	Mark
9(b)(i)	• any (whole number) value from 550 to 580 (1)	**NB** check table if no answer given if answer in table is different to answer on the answer line then mark the answer on the answer line	**(1)**

Question number	Answer	Additional guidance	Mark
9(b)(ii)	• correct calculation (1) • 500.00 / 142.86 / 83.33 (1)	((54 – 9) ÷ 9) × 100 = 500 ((54 – 9) ÷ 54) × 100 = 83.333333 (45 ÷ 31.5) x 100 = 142.8571 **DO NOT ACCEPT** recurring numbers Correct bald answer scores 2 marks Bald answer of any correct value but incorrect rounding scores 1 mark	**(2)**
Question number	Answer	Additional guidance	Mark

9(b)(iii)	An explanation that makes reference to the following points: • because the total concentration of all the ions affects the water potential (1) • (total) ion concentration (for each organism) is similar to that of the sea water (1)	**ACCEPT** solute concentration / solute potential / osmotic potential **IGNORE** water concentration	**(2)**

Question number	Answer	Additional guidance	Mark
9(b)(iv)	because: their food contains different concentrations of each ion they eat different food they incorporate different concentrations of each ion (into other molecules) it depends on the requirements of the {cells / animal / body} they absorb ions differently they live in different areas of the sea different parts of the sea have different ion concentrations	**IGNORE** refs to size of animal	**(1)**

Question number	Answer	Additional guidance	Mark
9(b)(v)	An explanation that makes reference to the following points: • active transport (of ions) (1) • because some of the ions have a higher concentration inside the {organisms / cells / tissues} (than in the sea water) (1)	 DO NOT ACCEPT {diffusion / facilitated diffusion / osmosis} ACCEPT the converse to move the ions {against / up} the concentration gradient to move ions from a low to high concentration (of ions)	 (2)

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