

**2005 Biology**

**Higher**

**Finalised Marking Instructions**

**These Marking Instructions have been prepared by Examination Teams for use by SQA Appointed Markers when marking External Course Assessments.**

## Higher Biology 2005

### GENERAL MARKING ADVICE: BIOLOGY

The marking schemes are written to assist in determining the 'minimal acceptable answer' rather than listing every possible correct and incorrect answer. The following notes are offered to support Markers in making judgements on candidates' evidence, and apply to marking both end of unit assessments and course assessments.

1. There are no **half marks**. Where three answers are needed for two marks, normally one or two correct answers gain one mark.
2. In the mark scheme, if a word is **underlined** then it is essential; if a word is **(bracketed)** then it is not essential.
3. In the mark scheme, words separated by / are **alternatives**.
4. If two answers are given which contradict one another the first answer should be taken. However, there are occasions where the second answer negates the first and no marks are given. There is no hard and fast rule here, and professional judgement must be applied. Good marking schemes should cover these eventualities.
5. Where questions in data are in two parts, if the second part of the question is correct in relation to an incorrect answer given in the first part, then the mark can often be given. The general rule is that candidates should not be penalised repeatedly.
6. If a numerical answer is required and units are not given in the stem of the question or in the answer space, candidates must supply the units to gain the mark. If units are required on more than one occasion, candidates should not be penalised repeatedly.
7. Clear indication of understanding is what is required, so:
  - if a description or explanation is asked for, a one word answer is not acceptable
  - if the question ask for **letters** and the candidate gives words and they are correct, then give the mark
  - if the question asks for a word to be **underlined** and the candidate circles the word, then give the mark
  - if the result of a calculation is in the space provided and not entered into a table and is clearly the answer, then give the mark
  - **chemical formulae** are acceptable eg CO<sub>2</sub>, H<sub>2</sub>O
  - contractions used in the Arrangements document eg DNA, ATP are acceptable
  - words not required in the syllabus can still be given credit if used appropriately eg metaphase of meiosis
8. Incorrect **spelling** is given. Sound out the word(s),
  - if the correct item is recognisable then give the mark
  - if the word can easily be confused with another biological term then **do not** give the mark eg ureter and urethra
  - if the word is a mixture of other biological words then **do not** give the mark, eg mellum, melebrum, amniosynthesis

9. **Presentation of data:**

- if a candidate provides two graphs or bar charts (eg one in the question and another at the end of the booklet), mark both and give the higher score
- if question asks for a line graph and a histogram or bar chart is given, then do not give the mark(s). Credit can be given for labelling the axes correctly, plotting the points, joining the points either with straight lines or curves (best fit rarely used)
- if the  $x$  and  $y$  data are transposed, then do not give the mark
- if the graph used less than 50% of the axes, then do not give the mark
- is 0 is plotted when no data is given, then do not give the mark (ie candidates should only plot the data given)
- no distinction is made between bar charts and histograms for marking purposes. (For information: bar charts should be used to show discontinuous features, have descriptions on the  $x$  axis and have separate columns; histograms should be used to show continuous features; have ranges of numbers on the  $x$  axis and have contiguous columns)
- where data is read off a graph it is often good practice to allow for acceptable minor error. An answer may be given  $7.3 \pm 0.1$

10. **Extended response questions:** if candidates give two answers where this is a choice, mark both and give the higher score.

11. **Annotating scripts:**

- put a 0 in the box if no marks awarded – a mark is required in each box
- indicate on the scripts why marks were given for part of a question worth 3 or 2 marks. A ✓ or x near answers will do

12. **Totalling scripts:** errors in totalling can be more significant than errors in marking:

- enter a correct and carefully checked total for each candidate
- do not use running totals as these have repeatedly been shown to lead to more errors

## 2005 Biology Higher

### Marking scheme

#### Section A

1.	A	16.	C
2.	A	17.	D
3.	D	18.	B
4.	A	19.	A
5.	B	20.	C
6.	C	21.	D
7.	D	22.	B
8.	D	23.	C
9.	A	24.	C
10.	C	25.	D
11.	B	26.	C
12.	B	27.	B
13.	C	28.	A
14.	B	29.	B
15.	A	30.	D

**Marking Instructions**

**Biology Higher**

**Section B & C**

Question	Acceptable Answer	Mark	Unacceptable Answer	Negates								
<b>1 (a)</b>	A (Central) matrix B Crista(e) (both needed)	<b>1</b>										
<b>(b) (i)</b>	<table border="1" data-bbox="459 582 1093 715"> <thead> <tr> <th><i>Substance</i></th> <th><i>Number of carbon atoms present</i></th> </tr> </thead> <tbody> <tr> <td>Pyruvic acid</td> <td><b>2x3 OR 3</b></td> </tr> <tr> <td>Acetyl group</td> <td><b>2</b></td> </tr> <tr> <td>Citric acid</td> <td><b>6</b></td> </tr> </tbody> </table> <p>3 correct = 2 marks, 2/1 correct = 1 mark</p>	<i>Substance</i>	<i>Number of carbon atoms present</i>	Pyruvic acid	<b>2x3 OR 3</b>	Acetyl group	<b>2</b>	Citric acid	<b>6</b>	<b>2</b>		
<i>Substance</i>	<i>Number of carbon atoms present</i>											
Pyruvic acid	<b>2x3 OR 3</b>											
Acetyl group	<b>2</b>											
Citric acid	<b>6</b>											
<b>(ii)</b>	Coenzyme A/CoA	<b>1</b>										

Question	Acceptable Answer	Mark	Unacceptable Answer	Negates
1 (c) (i)	NAD	1	NADP/NADH/FAD	
(ii)	Oxygen/O <sub>2</sub>	1		
(iii)	Transfer of <u>chemical</u> energy  <b>OR</b>  <u>Immediate/Instant</u> source of energy  <b>OR</b>  Energy for enzyme controlled reactions/for metabolic reactions/for chemical reactions  <b>OR</b>  Energy for DNA synthesis/DNA replication/protein synthesis/glycolysis/active transport/muscle contraction/cell division/mitosis/meiosis/Calvin cycle	1	Supplies energy Is an energy source           Energy for growth/movement/respiration/reactions/cell processes	
(iv)	ATP is made at the same rate as it is broken down <b>OR</b> ATP is continually/continuously/constantly/always made/synthesised/regenerated <b>OR</b> As ATP is broken down, more is produced <b>OR</b> ATP made to replace ATP broken down/used	1	ATP made to keep levels constant ATP made by respiration ATP is recycled	Incorrect statement about quantity of ATP made e.g. more ATP made than broken down OR there is a net gain of ATP
(d)	Lactic acid/lactate	1		

Question	Acceptable Answer	Mark	Unacceptable Answer	Negates
2 (a) (i)	Engulf or description of engulfing eg flows around/surrounds	1	Phagocytosis	
	(ii) Join to vacuole/vesicle <u>and</u> add digestive enzymes	1	Attack and digest contents of vacuole Have enzymes to digest bacteria	engulf
(b) (i)	Lymphocyte	1	Monocyte White blood cell B cell	
	(ii) Transplant recognised as foreign <b>OR</b> Transplant has foreign antigens/proteins <u>and</u> Cell X will make antibodies against it/them  <b>OR</b> Produces antibodies that react with foreign antigens/foreign proteins/antigens on transplanted tissue	1		
	(iii) Immunosuppressor drugs/suppressor drugs <b>OR</b> Drugs that suppress the immune system	1	Immunorepressor drugs Anti-rejection drugs	

Question	Acceptable Answer	Mark	Unacceptable Answer	Negates
3 (a)	Wire, short <b>OR</b> Short, wire	<b>1</b>	Any genotypes	Any additional incorrect phenotype
(b)	Male gametes added in left to right order: AB, Ab, aB, ab Female gametes added in vertical order: AB, Ab, aB, ab	<b>1</b>		
(c)	Box 1 = wire short Box 2 = wire short Box 3 = smooth short Box 4 = smooth long  All 4 correct for 2 marks, 3/2 for 1 mark	<b>2</b>		
(d)	12 : 3 : 1	<b>1</b>		



Question	Acceptable Answer	Mark	Unacceptable Answer	Negates
4 (a)	(i) Peptide	1	Covalent Polypeptide	
	(ii) Type of gene mutation: Substitution  Justification: <u>Middle</u> (base) G (for arg codon) replaced by (base) U (for leu)	1  1	G replaced by U	Middle codon Middle gene
	(iii) Ile/Isoleucine replaced by phe/phenylalanine <b>OR</b> Phe/phenylalanine used instead of ile/isoleucine	1	Arg replaced by leu	
(b) (i)	Pituitary	1	Hypothalamus	
(ii)	Drinking fresh water = Decrease Sweating = Increase Eating salty food = Increase Severe bleeding = Increase  All 4 correct for 2 marks, 3/2 for 1 mark	2		
(iii)	Increases permeability to <u>water</u> <b>OR</b> Increases absorption/reabsorption of <u>water</u>	1	Urine production decreases	

Question	Acceptable Answer	Mark	Unacceptable Answer	Negates
<p><b>5 (a)</b></p> <p><b>(b) (i)</b></p> <p><b>(ii)</b></p>	<p>Geographical/ecological/reproductive</p> <p>1 They/Mutations are <u>different</u> in each sub-population Mutation in one sub-population but not in other</p> <p>2 Best adapted survive/Survival of the fittest <b>OR</b> converse</p> <p><b>OR</b></p> <p>Organisms with favourable characteristics/genes/ alleles/mutations survive/are selected for <b>OR</b> converse</p> <p>(Favourable) characteristics/genes/alleles/mutations passed on (to offspring/next generation) <b>OR</b> converse</p> <p><b>OR</b> (both ideas in one sentence eg) Organisms with favourable characteristics survive and pass them on (is worth 2 marks)</p> <p>They cannot interbreed/crossbreed/hybridise They cannot breed together/with each other</p>	<p><b>1</b></p> <p><b>1</b></p> <p><b>1</b></p> <p><b>1</b></p>	<p>Specific examples of these only eg river</p> <p>Random</p> <p>Strongest survive</p> <p>They cannot breed They cannot reproduce successfully</p>	

Question	Acceptable Answer	Mark	Unacceptable Answer	Negates		
6	(a)	plasmid (restriction) endonuclease gene probe cellulase	All 4 correct = 2 marks 3 or 2 correct = 1 mark	2		
	(b)	Sexual incompatibility Two species cannot interbreed/hybridise	1	Infertility Cannot reproduce		
7	(a)	(i)	Down a concentration gradient From a high to a low water concentration From hypotonic to hypertonic solution	1	By osmosis	
		(ii)	Large surface area for <u>greater/better/more</u> absorption/water uptake/osmosis <b>OR</b> <u>Greater/Larger/Bigger</u> surface area for absorption/water uptake/osmosis	1		
	(iii)	Cohesion	1	Cohesion and adhesion	adhesion	
	(iv)	Any 2 from: Nucleus/Cytoplasm/Contents of cell break down/ disintegrate/disappear/are destroyed  Forms tube/End walls break down/disintegrate/ disappear/are destroyed  Lignin formed/deposited	2			

Question	Acceptable Answer	Mark	Unacceptable Answer	Negates
7	<p><b>(b) (i)</b> out of, less</p> <p><b>(ii)</b> Stops/Reduces/Prevents water loss</p> <p>No water lost</p> <p>To conserve/save water/moisture</p> <p><b>(c) (i)</b> C, D, E (all three needed)</p> <p><b>(ii)</b> Provides/Supplies water for turgidity/for support</p> <p><b>OR</b></p> <p>Provides/Supplies/Transports minerals/nutrients/ions (or named example)</p> <p><b>OR</b></p> <p>Cooling/heat loss</p>	<p><b>1</b></p> <p><b>1</b></p> <p><b>1</b></p> <p><b>1</b></p>	<p>Prevent drying out</p> <p>Turgidity</p> <p>Support</p>	

Question	Acceptable Answer	Mark	Unacceptable Answer	Negates
<p><b>8 (a) (i)</b></p> <p><b>(ii)</b></p> <p><b>(b)</b></p> <p><b>(c)</b></p> <p><b>(d)</b></p> <p><b>(e)</b></p>	<p>At 3 minutes (accept range 3 mins to 3 mins 30 secs) concentration is 10 units</p> <p>At 5 minutes (accept range 4 mins 54 secs to 5 mins)/2 minutes later, concentration is 25 units/increased by 15 units</p> <p>All 4 values correct = 2 marks 3 or 2 values correct = 1 mark</p> <p><u>Less</u> RuBP is changed to GP</p> <p>GP continues to be changed to RuBP</p> <p>75</p> <p>Decrease, Increase (both needed)</p> <p>8</p> <p>10</p>	<p><b>2</b></p> <p><b>1</b></p> <p><b>1</b></p> <p><b>1</b></p> <p><b>1</b></p> <p><b>1</b></p>	<p>No RuBP changed to GP</p>	

Question	Acceptable Answer	Mark	Unacceptable Answer	Negates
9 (a)	As it/age increases, duration (of chase) increases <b>OR</b> converse	1		
(b)	9	1		
(c)	Slower <b>OR</b> less experienced <b>OR</b> tire more quickly <b>OR</b> have less stamina <b>OR</b> are weaker <b>OR</b> less able to defend themselves	1	More calves Smaller Not fully grown	
(d)	Net energy gain is greater <b>OR</b> description	1		
(e)	Hunting success is greater <b>OR</b> Can hunt for larger prey <b>OR</b> Individual energy output is less <b>OR</b> More food gained than hunting alone <b>OR</b> Can tire out prey <b>OR</b> Can protect kill better	1	All get share of food Saves energy Use less energy Weaker members get food Easier to hunt prey	
(f)	Interspecific	1		

Question	Acceptable Answer	Mark	Unacceptable Answer	Negates
<p><b>10 (a) (i)</b></p> <p><b>(ii)</b></p> <p><b>(b)</b></p>	<p>Crowded for increased protection by neighbours/other birds  <b>OR</b>  Nest on cliff ledges where predators can't reach them  <b>OR</b>  Chicks remain in nest and get protection</p> <p>1. Three/More (eggs) so increased chance of one surviving  <b>OR</b>  Speckled eggs so are difficult to see /are camouflaged</p> <p>2. Can move short distances/away from nest/soon after hatching to escape from/hide from predators/danger</p> <p>Description of group behaviour in response to presence of predator so predator is discouraged from attacking/attack repelled</p> <p><b>OR</b>  More eyes on the lookout so alarm raised <u>earlier</u>.</p> <p><b>OR</b>  Confuse predator so <u>harder</u> to catch one/pick one off</p>	<p><b>1</b></p> <p><b>1</b></p> <p><b>1</b></p> <p><b>1</b></p>	<p>Crowded</p> <p>Nest on cliff ledges</p> <p>Remain in nest until able to fly</p> <p>Eggs are camouflaged</p> <p>The more animals, the harder it is to attack  Help defend each other  Fight off/Scare off predator  Safety in numbers</p>	

Question	Acceptable Answer	Mark	Unacceptable Answer	Negates
11 (a)	Allow/Let/Time for the solutions/chemicals to have an effect <b>OR</b> Allow/Let/Time for (dried) yeast to become active/produce enzyme/ catalase	1	Yeast getting used to surroundings Time for a reaction Give catalase time to work Catalase-hydrogen peroxide reaction	
(b)	Prevent cross contamination/contamination with other solutions/suspensions <b>OR</b> Prevent mixing of solutions/suspensions	1	Prevent contamination	
(c)	Temperature/type of yeast/concentration of hydrogen peroxide/pH	1	Light intensity	
(d) (i)	Correct scale and label added to both axes as follows: Y axis Scale: 0 to 90 Label: Volume of oxygen/ O <sub>2</sub> produced (cm <sup>3</sup> )  X axis Scale: 0 to 60 Label: Time (s) [Note: zero required on both axes <b>OR</b> a single zero clearly applying to <b>both</b> axes]	1		
(ii)	All points plotted correctly (must use symbol "X"), straight line drawn between points <b>and</b> key completed Key completion box: Yeast suspension in (0.1M) lead ethanoate	1		



Question	Acceptable Answer	Mark	Unacceptable Answer	Negates
11 (e)	<p>Allows a comparison to be made with other results/when no chemical is added</p> <p><b>OR</b></p> <p>Shows activity of catalase without chemicals/solutions</p>	1	<p>Provides a comparison</p> <p>Shows effect of no chemical</p> <p>Shows what yeast does on its own</p>	
(f)	<p>Any two from:</p> <p>1. Calcium does not inhibit/has no effect on yeast activity/enzyme/catalase</p> <p><b>OR</b></p> <p>Calcium has no effect on oxygen production</p> <p>2. Ethanoate does not inhibit/has no effect on yeast activity/enzyme/catalyse</p> <p><b>OR</b></p> <p>Ethanoate has no effect on oxygen production</p> <p>3. Lead inhibits yeast activity/enzyme/catalase</p> <p><b>OR</b></p> <p>Lead reduces oxygen production</p> <p><b>NB</b> If answer refers to calcium ethanoate or lead ethanoate then maximum 1 mark.</p>	2		

Question	Acceptable Answer	Mark	Unacceptable Answer	Negates
12 (a) (i)	Aleurone	1		
	(ii) Gibberellic acid/GA	1		
	(iii) Breaks down starch into maltose	1	Sugars/glucose	
	Used as <u>energy</u> source for growth/for germination/by embryo	1	Needed for germination Food for growth	
	(b)	Herbicide/weed killer/rooting powder To produce seedless fruits/parthenocarpy To prevent/delay fruit fall/fruit abscission To promote fruit development	1	Promote growth Break bud dormancy

Question	Acceptable Answer	Mark	Unacceptable Answer
13 (a)	Underline: <u>ectotherm</u> and <u>cannot</u>	1	
(b)	Lying in the sun <b>OR</b> Lying on a hot surface/hot sand/hot rock <b>OR</b> Basking	1	Any reference to movement of snake eg chasing prey, rattling tail
(c)	As environmental temperature rises above body temperature it stays constant <b>OR</b> Body temperature stays below 40°C when environmental temperature is greater than 40°C	1	Body temperature stays constant
(d)	At 10°C, greater heat loss	1	Effects of temperature on enzymes Body temperature rising to normal
	Metabolic reactions/Metabolism/Respiration provides heat	1	

### Extended response question C1A

Give an account of populations under the following headings:

- (i) the importance of monitoring wild populations; 5
  - (ii) the influence of density-dependent factors on population changes. 5
- (10)**

**Note: Marks may be awarded for information given in a diagram. The relevant piece of information must be clearly shown in a carefully drawn and labelled diagram.**

#### The importance of monitoring wild populations

1. food species plus a strategy for management, eg prevent overfishing/set quotas
2. raw material species **OR** species used in medicine plus strategy for management, eg avoid over-harvesting
3. pest species plus reason for monitoring, eg control of pest
4. indicator species plus reason for monitoring, eg to assess levels of pollution
5. endangered species plus reason for monitoring, eg to prevent extinction **OR** a consequential strategy, eg protection/conservation (or named example)
6. one named example from any of 1-5 above
7. one different named example from another of 1-5 above **max 5 marks**

#### The influence of density-dependent factors on population changes

8. effect of density-dependent factor increases as density increases (or converse)
9. two density-dependent factors named from List
10. a third density-dependent factor named from List  
List  
Disease/Parasites/Infection  
Food supply/availability  
Predation  
Competition for food/space/territory  
Toxic waste made by organisms
11. relate population change to Effect of **two** factors
12. relate population change to Effect of a **third** factor  
Effect  
if population increases then increase in disease/in spread of disease/parasites/infection  
if population increases then decrease in food available to individuals  
if population increases then increase in predation  
if population increases then increase in competition for food  
if population increases then increase in competition for space/territory  
if population increases then increase in production of toxic waste produced.  
**(converses of the above are also acceptable)**
13. (linked to 11 and 12) relate any of the above effects to a subsequent decrease in population  
**OR**  
(if converses given in 11 and 12) relate any of the above effects to subsequent increase in population
14. population returns to a size that the environment can sustain/to a stable level.

**Max 5 marks**

### Extended response question C1B

Give an account of growth and development under the following headings:

- |   |      |
|---|------|
| (i) the influence of pituitary hormones in humans;      | 4    |
| (ii) the effects of Indole Acetic Acid (IAA) in plants. | 6    |
|   | (10) |

**Note: Marks may be awarded for information given in a diagram. The relevant piece of information must be clearly shown in a carefully drawn and labelled diagram.**

#### The influence of pituitary hormones in humans

1. pituitary makes GH/growth hormones/somatotrophin
2. GH promotes growth of bones **OR** GH increases transport/uptake of amino acids
3. pituitary makes TSH/thyroid stimulating hormones
4. TSH affects/controls/stimulates regulates activity of thyroid gland/thyroxine production
5. increase in TSH results in increase in thyroxine **OR** converse
6. thyroxine affects metabolic processes/metabolism/rate of chemical reactions.

**Max 4 marks**

#### The effects of Indole Acetic Acid (IAA) in plants

7. promotes cell division/mitosis
8. leads to cell elongation
9. inhibits development/growth of lateral buds **OR** leads to apical dominance
10. causes fruit formation
11. low levels lead to leaf abscission
12. leads to phototropic response/phototropism
13. in directional light, IAA accumulates on dark side/side away from light
14. greater/more elongation on dark side **OR** less elongation on light side.

**Max 6 marks**

### Extended response question C2A

Give an account of the absorption of light energy by photosynthetic pigments and the light-dependent stage of photosynthesis. (10)

**Note: Marks may be awarded for information given in a diagram. The relevant piece of information must be clearly shown in a carefully drawn and labelled diagram.**

#### Absorption of light energy

1. chlorophyll a and b, xanthophyll and carotene named
2. chlorophyll absorbs red and blue light/colours/wavelengths
3. xanthophyll and carotene/accessory pigments absorb light from other regions of spectrum/of other colours/of other wavelengths
4. light absorption occurs over a wide range of spectrum/wider range of colours/more wavelengths
5. energy absorbed by xanthophyll/carotene/accessory pigments is passed on to chlorophyll
6. occurs in the grana. (award **ONCE** only) **Max 4 marks**

#### Light-dependent stage

6. occurs in the grana. (award **ONCE** only)
7. light energy converted to chemical energy
8. regenerate ATP from ADP and Pi
9. split water **OR** energy used in photolysis of water
10. hydrogen combines with NADP **OR** NADPH<sub>2</sub>/NADPH/reduced NADP formed
11. oxygen is a by-product **OR** oxygen diffuses/passes/goes out of cells/leaf
12. NADPH<sub>2</sub> and ATP diffuse/passes/goes to stroma/are used in Calvin cycle. **Max 4 marks**

**1 mark for coherence + 1 mark for relevance      Maximum Total = 10 marks**

#### Coherence

1. The writing must be under **sub-headings** or divided into **paragraphs**.  
A sub-heading/paragraph for each of 'Absorption of light energy' and 'Light-dependent stage'.
2. Related information should be **grouped together**.  
Information on 'Absorption of light energy' should be grouped together with at least two points given.  
Information in 'Light-dependant stage' should be grouped together with at least two points given.  
There must be a minimum of **five correct** points.

**Both** must apply correctly to gain the **Coherence** mark.

#### Relevance

1. **Must not** give details of the carbon fixation stage of photosynthesis.
2. **Must** have given at least **two** relevant points from 'Absorption of light energy' and at least **two** relevant points from 'light-dependent stage' and at least **five** correct points overall.

**Both** must apply correctly to gain the **Relevance** mark.

## Extended response question C2B

Give an account of the structure of RNA and its role in protein synthesis. (10)

**Note: Marks may be awarded for information given in a diagram. The relevant piece of information must be clearly shown in a carefully drawn and labelled diagram.**

### Structure of RNA

1. single stranded
2. made of nucleotides
3. has a base, ribose (sugar) and a phosphate
4. bases are guanine, cytosine, adenine and uracil. (not letters A,U,G,C)

**Max 3 marks**

### Role in protein synthesis

5. mRNA carries information/code (for protein) from nucleus/from DNA
6. mRNA attaches to ribosome
7. three bases on mRNA is a codon
8. tRNA transport amino acids to ribosome
9. tRNA transports specific amino acids
10. three bases on tRNA is an anticodon
11. codons match/pair with their anticodons
12. joins/adds correct amino acid onto growing protein/polypeptide.
13. sequence of bases/codons on mRNA gives sequence of amino acids

**Max 5 marks**

**1 mark for coherence + 1 mark for relevance      Maximum Total = 10 marks**

### Coherence

1. The writing must be under **sub-headings** or divided into **paragraphs**.  
A sub heading/paragraph for each of 'structure of RNA' and 'Role in protein synthesis'.
2. Related information should be **grouped together**.  
Information on 'Structure of RNA' should be grouped together with at least **two** points given.  
Information on 'Role in protein synthesis' should be grouped together with at least **three** points given.

**Both** must apply correctly to gain the **Coherence** mark.

### Relevance

1. **Must not** give details of DNA structure, DNA replication, protein transport, protein secretion (allow only **ONE** reference to DNA but don't count a reference to DNA in a description of transcription).
2. **Must** have at least **two** relevant points from 'Structure of RNA' and at least **three** relevant points from 'Role in protein synthesis'.

**Both** must apply correctly to gain the **Relevance** mark.

[END OF MARKING INSTRUCTIONS]