Commentary on candidate evidence

The candidate evidence has achieved the following marks for each question of this course assessment component.

Question	Candidate response	Max mark	Mark awarded	Comments
1(b)	1	1	0	DNA polymerase is not named, and it states that nucleotides are added to both ends.
1(b)	2	1	0	Although DNA polymerase is stated, there is no indication of the start point for replication or the correct end of strand.
1(d)	1	2	1	The first mark is not awarded as 'DNA fragments' are not equivalent to 'chromosomes'. The mark for plasmids is awarded.
1(d)	2	2	1	The first mark is not awarded as there is no mention of chromosome and it states that circular DNA is in the mitochondria/chloroplast. The mark is awarded for plasmids.
3A	1	4	3	The following marks are awarded: Point 1 – for the label in the diagram. Point 5 – for H+ moving through ATP synthase in the diagram. Point 6 – for the written description, as the diagram lacked arrowheads.
3A	2	4	4	The following marks are awarded: Point 1 – line 1 – cristae of mitochondrion. Point 3 – line 2 – electrons passed along the electron transport chain. Point 4 – line 6 – energy allowing hydrogen ions to be pumped across the inner mitochondrial membrane.

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				Point 5 – line 8 – hydrogen ions flowing back through ATP synthase. Point 6 would not be awarded as 'results in ATP' is not equivalent to produces ATP.
4(b)(i)	1	1	0	'A gene is replicated' is incorrect as it suggests DNA replication occurs. However, 'matching chromosome' would have been equivalent to 'homologous partner' if the answer was otherwise correct.
4(b)(i)	2	1	0	There is no mention of homologous chromosome.
6(a)	1	1	0	The response, 'to see what effect it had **on** the drugs' is not equivalent to effect **of** the drugs.
6(a)	2	1	0	The addition of 'more reliable experiment' negates the otherwise correct response.
7(c)	1	1	0	The response, 'used for transcription' is not acceptable for regulates transcription.
7(c)	2	1	1	The response is correct, as 'switching genes off' is equivalent to regulates transcription.
7(d)	1	1	0	The response incorrectly states that exons are spliced together in different orders.
7(d)	2	1	1	The response indicates that the exons involved are different but the order of these is not changed.
8(a)	1	2	1	One mark is awarded for the first point. The second mark is not awarded as there is no description of what happens between 60-100 minutes.

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8(a)	2	2	1	One mark is awarded as although the description and values are correct, no units are given for lactose concentration.
9(b)(iii)	1	2	1	The first mark is awarded as 'pick up' is equivalent to removes. The second mark is not awarded as there is no mention of NAD.
9(b)(iii)	2	2	2	The first mark is awarded for removing hydrogen ions and electrons. The second mark is awarded for NAD becoming NADH.
10(c)(iv)	1	2	2	The first mark is awarded as 'so no other microorganisms contaminate the fermenter' is equivalent to other microorganisms not being present. The second mark is awarded for preventing competition with *A. niger.*
10(c)(iv)	2	2	0	The first mark is not awarded as there is no mention of microorganisms. The second mark is not awarded as contamination of citric acid or the end product is not stated.
12(b)	1	3	1	One mark is awarded for the key as it distinguishes between the two lines. No mark is awarded for the axes and scale as the X-axis scale is incorrect (25 is missing). The plotting mark is not awarded because the 30 second WT plot is too high.
12(b)	2	3	3	'No.' is an acceptable abbreviation for 'number' on the Y-axis label.
14(a)(ii)	1	1	1	In the response, 'using energy & nutrients from the human that the human needs' is equivalent to harm.

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14(a)(ii)	2	1	0	Identifying the harm as Lyme disease negates the otherwise correct response.
16A(i)	1	3	2	The following marks are awarded: Point 2 – line 1. Point 4 – line 4. Point 5 is not awarded as it states that ATP is used for photolysis.
16A (i)	2	3	3	The following marks are awarded: Point 2 – line 1 – electrons raised to a high energy state is equivalent to becoming excited. Point 4 – line 6. Point 5 – line 7. Point 3 is not awarded as the electron transport chain is not named.
16A(ii)	1	4	4	The following marks are awarded: Point b – line 2 Point c – line 3 Point e – line 5 Point g – line 8 Point d is not awarded as ATP is not stated. Point f is not awarded as sugar is not acceptable for glucose.

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16A(ii)	2	4	4	The following marks are awarded: Point e – the diagram shows hydrogen/NADPH being used in the formation of G3P (even though 3PG is incorrectly named 3GP). Point f – the diagram shows G3P forming glucose. Point g – the diagram shows G3P forming RuBP. Point b is not awarded as 3PG is incorrectly named 3GP.