OCR
RECOGNISING ACHIEVEMENT

GCSE

Biology A
Twenty First Century Science

General Certificate of Secondary Education **J633**

Report on the Units

January 2008

J633/PER/R/08

Oxford Cambridge and RSA Examinations

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This report on the Examination provides information on the performance of candidates which it is hoped will be useful to teachers in their preparation of candidates for future examinations. It is intended to be constructive and informative and to promote better understanding of the syllabus content, of the operation of the scheme of assessment and of the application of assessment criteria.

Reports should be read in conjunction with the published question papers and mark schemes for the Examination.

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REPORTS ON THE UNITS

A221/01 – Twenty First Century Science Biology A (B1, B2, B3) Foundation Tier

General Comments

The papers were completed by all candidates in the time allowed with no evidence of candidates running short of time. A good range of marks were scored from quite low to very high with a good minority of candidates achieving almost full marks.

Comments on Individual Questions

Q1
- a(i) Most candidates achieved both marks on this question.
- a(ii) While many candidates managed this sequence well there were some who had difficulty in putting the statements in the correct order.
- b Generally well answered.

Q2
- a Most candidates achieved the mark.
- b+c Candidates struggled to distinguish between benefits to the individual and benefits to society as a whole. Only the most able candidates scored all the marks.

Q3
- a Many candidates chose fungi as the response to this question instead of viruses.
- b Most candidates recognised that resistance to antibiotics was the best answer while some chose the response that not all micro organisms are controlled by antibiotics.
- c This sequence was less well completed than the previous one with only the most able getting it correct.

Q4
- a(i) Most candidates achieved at least one of the marks but many failed to get both.
- a(ii) Most candidates achieved both marks but many thought that eye colour could change.
- b An alarming number of candidates thought that Steven had twice as many genes as his twin brothers and a few chose the response that genes are lost as we grow.
- c(i) The most able candidates were able to fully complete the diagram while most achieved at least one of the marks.
- c(ii) A great variety of responses were given. Many candidates failed to circle any combination at all.
- d(i) A surprising number of candidates chose the wrong combination.
- d(ii) Most candidates could select arguments for but the arguments against were more problematic. Very few candidates failed to score at least one mark.

Q5
- a Generally well answered.
- b Most candidates achieved the mark. Of those that did not some chose statement 1 or 2.
- c Answers to this part of the question were varied with the most common wrong response being that the rodent had never been observed in the wild.
- d Generally well answered.

Q6
- a(i) Most candidates were able to choose two nervous responses.
- a(ii) Only the most able were able to choose the two hormonal responses.
- b Most candidates achieved at least 2 of the 4 marks available. More able candidates achieved all 4.

A221/02 – Twenty First Century Science Biology A (B1, B2, B3) Higher Tier

General Comments

Candidates performed very well on this paper and were well prepared for the examination. There was no evidence that any of the candidates ran out of time.

Candidates should be aware that this is mainly a multiple choice style of question paper and that any questions that they cannot answer, they should at least try to eliminate incorrect responses and then take a guess at the correct answer.

The paper is now marked by electronic marking after first being scanned and then fed electronically to examiners. It is now more important than ever that candidates use legible writing and restrict their responses to the boxes, spaces and lines that have been provided rather than writing in margins and other areas that may not be visible to examiners in the electronic copy.

Comments on Individual Questions

Q1 Part a(i) proved to be an easy start to the paper with most candidates scoring the mark by identifying Grace as the correct response.
Part a(ii) also scored well. Errors were rare but when they did occur, sometimes included Grace as an answer to both a(i) and a(ii).
In part (b) most candidates correctly realised that different studies produce different results and that not enough evidence may have been collected.
Part c(i) proved to be more testing with some weaker candidates thinking that there was a positive correlation between vaccine uptake and the number of cases of measles.
Part c(ii) was well done and most candidates gained the mark.
Most candidates scored at least one of the marks for part (d). Where errors did occur it was usually with candidates failing to identify B as a correct answer. Answers were accepted either way round.

Q2 Part (a) was well done with most candidates realising that microorganisms can become resistant to antibiotics.
In part (b) only the more able scored all three marks. Weaker candidates tended to guess and thus lost one or two of the marks available.

Q3 Almost all candidates scored at least one of the two marks available for part (a) with the more able gaining two marks. A common misconception was that differences between clones were due to genetic factors.
Both b(i) and b(ii) were well done with most candidates scoring full marks. There has been a distinct improvement with how candidates answer this type of question.
Surprisingly part c(i) was not well done by all candidates. It was anticipated when the paper was written that this would be a straightforward question but weaker candidates often failed to score with X or XY being common incorrect responses. It was clear that candidates who gave XY failed to realise that it is the Y chromosome that is responsible for maleness.
Part (cii) was well done with most candidates scoring all three marks.

Q4 Only more able candidates scored both marks in part (a). Most candidates realised that the test may give a false result, but weaker candidates sometimes thought that his employer could provide him with counselling, was a correct response.
Most candidates scored all three marks for this section by correctly identifying the three correct responses. Candidates were not told how many correct responses there were for this question even though three marks were available.

Q5 In part (a) candidates were told that they need to identify three statements. Candidates would be well advised to guess the answers if they cannot identify all three. At least that way they are in with a chance of scoring all three marks. Most candidates performed well and only weaker candidates lost marks on this section. Any order of the correct statements was accepted.
Most candidates scored the mark for part (b). Where errors did occur, candidates thought that the rodent had never been observed in the wild.
In part (c) although most candidates scored at least two out of the three marks available, statement G proved to be a powerful wrong distracter. Too many candidates thought like Lamarck that individual animals develop characteristics during their lifetime.
Part (d) was well answered with most candidates gaining all three marks.

Q6 Both parts (ai) and (aii) were well done with most candidates gaining full marks. However part (b) which should have been an easy end to the paper proved to be a ‘sting in the tail’ with too many candidates failing to recall that the correct answer was homeostasis.

A222/01 – Twenty First Century Science Biology A (B4, B5, B6) Foundation Tier

General Comments

Candidates performed very well on this paper and were well prepared for the examination. There was no evidence that any of the candidates ran out of time.

Candidates should be aware that this is mainly a multiple choice style of question paper and that any questions that they cannot answer, they should at least try to eliminate incorrect responses and then take a guess at the correct answer.

The paper is now marked by electronic marking after first being scanned and then fed electronically to examiners. It is now more important than ever that candidates use legible writing and restrict their responses to the boxes, spaces and lines that have been provided rather than writing in margins and other areas that may not be visible to examiners in the electronic copy.

Comments on Individual Questions

Q1 Part (a) proved to be an easy start to the paper with most candidates scoring the mark.
In part (b) marks were only lost when a candidate failed to read the question and only ticked one of the two boxes as requested.
Part (c) also scored well with most candidates correctly realising that running a marathon and camping in winter were more likely to affect the maintenance of a constant internal environment.
Part d(i) was not so well done. Far too many candidates failed to appreciate the difference between receptor and effector, writing them the wrong way round in the boxes. This lost the candidates two marks. Most candidates knew that the brain is the processing centre and that the nerve impulse travelled from the hand towards the brain.
Part d(iii) was well done with most candidates scoring the full three marks. Common incorrect answers however included ‘dreams’ and ‘arguments’.

Q2 This was an overlap question with the higher tier and was therefore assessing grades C and D candidates. Less able candidates provided a variety of responses to part (a) indicating that guessing played a significant factor.
Part (b) proved to be slightly easier but a disturbing number of candidates failed to read the question and simple ticked boxes rather than labelling them with the letter ‘d’ for diffusion or ‘o’ for osmosis. It was pleasing to see that candidate’s handwriting was sufficiently good enough that examiners had no difficulty distinguishing the two written letter apart when marking the scripts. Many candidates did not use the clue that the statements involving water were examples of osmosis and the rest diffusion. Commonly candidates gave the first two responses correctly but then failed to get the next three responses correct.
In part (c) most candidates realised that temperature must remain constant for enzymes to work but a significant number gave a range of alternative incorrect answers.
Part (d) proved to be more difficult with a large number of candidates thinking that a rapid change of temperature would increase the rate of reaction of enzymes. Only a minority realised that faster collisions between enzymes and other molecules was the correct answer.

Q3 Part (a) worked well and discriminated between the weaker and more able candidates. More able candidates scored the full five marks. Incorrect spelling was not penalised as long as the word was phonetically correct. However examiners insisted on no letter 'T' in 'meiosis' and the letter 'T' being in the correct place for 'mitosis'. The word 'cell' was commonly given in error for 2 across and 'zygote' for 3 down.
Only the more able candidates scored three marks in part (b). Normally candidates find sequencing questions quite straightforward but this proved to be more challenging with a significant number of responses completely the wrong way round thus scoring no marks.

Q4 In part a(i) most candidates ringed '4' as the correct response. It would seem that incorrect responses were as a result of candidates simply guessing.
Part a(ii) was well done with most candidates scoring both marks.
Again in part (b) most candidates correctly identified 'embryo' as the correct answer.
Part (c) proved to be more testing with only the more able candidates scoring both marks. Only a small number of candidates failed to score at least one the two marks available.

Q5 Part (a) was generally well done but a significant number of candidates gave the incorrect response of 'synapse' for the third box. Most candidates however scored both marks in the first two boxes.
Part (b) was well done and most candidates correctly identified the two examples of reflex actions.
Part (c) was also well done with very few incorrect responses.
In part (d) most candidates scored both marks. Some candidates completely confused long term with short term memory and thus lost both marks.

Q6 This question was surprisingly well done. Most candidates had a clear idea of the sequence of how drugs are absorbed and affect synapses. Only the less able candidates failed to score full marks on this question which proved to be a straightforward end to the paper.

A222/02 – Twenty First Century Science Biology A (B4, B5, B6) Higher Tier

General Comments

A good range of marks achieved with a pleasing number of candidates achieving close to full marks.

Almost all candidates finished in the time allocated with very few candidates offering no response to all questions.

Some difficulty was experiences with label lines for the two questions that required this. Candidates must be taught to end their lines on the exact point which they wish to indicate. Lines that fall short or arrow heads that overshoot the required areas have to be marked as incorrect due to ambiguity.

There was some evidence of candidates failing to heed all of the instructions given. See particularly Q2b, 4ai,4b and 6b.

Comments on Individual Questions

Q1
- a Generally well answered.
- b Most candidates achieved this although spelling was not always correct.
- c Most candidates achieved at least one mark for the statement that negative feedback maintains a constant level but many showed confusion of the mechanism of negative feedback.
- d This was where accuracy of labelling lines was important as the required areas are small and therefore there is less tolerance for error. This was particularly evident for the receptor where only the retina and NOT the blind spot was acceptable. Many lines finished just beyond the retina, and so were disallowed.

Q2
- a Most candidates chose the correct response.
- b The choice of a lower case d was deliberate in this question as a capital D is easy to confuse with an O. If it was unclear which had been used then the mark was disallowed.
- c+d Well answered

Q3
- a The inclusion of the e in the crossword was designed to help candidates put the words Mitosis and Meiosis in the correct place. Some candidates wrote the same word twice. Allowance was made for misspelling of words that crossed each other.
- b Many candidates failed to identify the correct order for mitosis. The most common mistake being in placing the copying of the two strands of DNA after the chromosomes separating.

Q4
- a Many candidates achieved the mark. The most common incorrect response was 3 (the number of bases that code for a single amino acid) presumably because of a misreading of the question.
- b Many candidates wanted to use all five descriptions in spite of the instruction to draw two straight lines. This led to them losing a mark for the correct statements.
- c Generally well answered.

Q5 a(i) This was the second question that caused problems with labelling. Many candidates failed to end their label lines touching the correct part of the diagram. Where this led to ambiguity the marks were disallowed.

a(ii) Most candidates knew which way the impulse was travelling but a few candidates failed to respond.

b Most candidates achieved 1 or 2 marks here. Some responses were indistinct between T and F, and so were disallowed.

Q6 a Many candidates found this question difficult with only the most able achieving both marks.

b This question caused problems for some candidates who wanted to join all the boxes. Most candidates correctly identified the simple reflex but joined both falling asleep and salivating to the conditioned reflex leading to the loss of the second mark.

c Only the most able candidates achieved all three marks in this question but a pleasing number achieved the first 2 marks

Grade Thresholds

General Certificate of Secondary Education
Biology A (Specification Code J633)
January 2008 Examination Series

Unit Threshold Marks

Unit		Maximum Mark	A*	A	B	C	D	E	F	G	U
A221/01	Raw	42	N/A	N/A	N/A	35	30	25	20	15	0
	UMS	34	N/A	N/A	N/A	30	25	20	15	10	0
A221/02	Raw	42	40	38	34	30	24	21	N/A	N/A	0
	UMS	50	45	40	35	30	25	23	N/A	N/A	0
A222/01	Raw	42	N/A	N/A	N/A	33	29	25	22	19	0
	UMS	34	N/A	N/A	N/A	30	25	20	15	10	0
A222/02	Raw	42	40	37	31	26	20	17	N/A	N/A	0
	UMS	50	45	40	35	30	25	23	N/A	N/A	0

Specification Aggregation Results

Overall threshold marks in UMS (i.e. after conversion of raw marks to uniform marks)

	Maximum Mark	A*	A	B	C	D	E	F	G	U
J633	300	270	240	210	180	150	120	90	60	0

No candidates were entered for aggregation this series. First aggregation opportunity is in June 2008.

For a description of how UMS marks are calculated see:
http://www.ocr.org.uk/learners/ums_results.html

Statistics are correct at the time of publication.

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