

Additional Science B J641

Gateway Science Suite

General Certificate of Secondary Education

Report on the Units

January 2009

J641/MS/R/09J

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

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CONTENTS

General Certificate of Secondary Education

Gateway Additional Science B (J641)

REPORT ON THE UNITS

Unit/Content	Page
B623/01 Unit 1: Modules B3, C3 and P3 Foundation Tier	1
B623/02 Unit 1: Modules B3, C3 and P3 Higher Tier	4
B624/01 Unit 2: Modules B4, C4 and P4 Foundation Tier	8
B624/02 Unit 2: Modules B4, C4 and P4 Higher Tier	11
Grade Thresholds	14

B623/01 Unit 1: Modules B3, C3 and P3

Foundation Tier

General Comments

The level of difficulty of the paper was felt by Examiners to be appropriate, producing a spread of marks. Only a few candidates scored very highly and this was, in part, due to candidates being unable to show their understanding in continuous writing responses. The majority of candidates attempted most questions even weaker candidates did attempt a reasonable proportion of the questions. There was no indication that candidates had too much or too little time and there were fewer 'no responses' to questions than in previous examinations.

Comments on Individual Questions

SECTION A - MODULE B3

Question 1

- (a) This was universally well answered with sperm being the correct response
- (b) Again well answered, most scoring from a suitable reference to fertilisation. A common error was to refer to going to / meeting with the egg rather than joining it.
- (c) This caused more problems with 1 mark being the norm – usually for the tail for swimming. A common error here was to talk about head being pointy to get into the egg.

Question 2

- (a) Responses indicated clear understanding of substances transported in the blood (2 marks being the norm). However, a significant number of candidates attempted to put 2 answers on each line.
- (b) More able candidates got the membrane but misconceptions were seen with nucleus and cell wall being common errors.

Question 3

- (a) Few candidates referred to asexual reproduction, although some scored through cloning.
- (b) Here, various terms related to reproduction appeared and some referred to cloning here instead of the correct response of mitosis.
- (c)
 - (i) A well answered question. Correct interpretation of the information was seen in most candidates.
 - (ii) A well answered question. Correct interpretation of the information was seen in most candidates.
 - (iii) This was very poorly answered with the vast majority of candidates scoring 0. There was little evidence of candidates understanding the stages of selective breeding. Responses tended to refer to genetic engineering and / or conditions required for plant growth. A number of responses concentrated on fair testing – same light, temp etc.

Question 4

- (a) Cholesterol was well known. However, only the better candidates scored well in the rest of the question.
- (b) This was often called an artery and not specifically the aorta, a few referred to veins.
- (c) Very few candidates knew what stem cells were with vague references to using them to repair tissue being the norm. A significant number of candidates also said stem cells were plant cells.

Question 5

- (a) This was generally well answered with nucleus the most common correct response.
- (b) Enzymes were given correctly by only the more able candidates.
- (c) Most candidates scored through reference to DNA being unique.

SECTION B - MODULE C3

Question 6

- (a) Was generally well known but apart from the better candidates, the remainder of the question was very poorly answered.

Common errors included potassium and bromine in (b), Oxygen in (c) and any element apart from chromium in (d).

Question 7

- (a) Most gained the mark through electrical, but weaker candidates were unable to give a reason in (b) with high melting point and heats up easily being common errors. A significant number also lost the mark by referring to electricity as a reason in (b).
- (c)
 - (i) Few candidates scored with blue, with red and purple being the most common incorrect answers.
 - (ii) The word precipitate was not evident in any responses. Those who gained this mark named copper hydroxide.

Question 8

- (a) There were very mixed responses to this question, with the distinction between element and compounds clearly not understood. Common errors included CO_2 / MgO in part (i) and CaCO_3 in part (ii).
- (b) This was generally well known as sodium, hydrogen and oxygen, although incorrect responses such as oxide / hydroxide often appeared.

Question 9

- (a)
 - (i) This was well answered.
 - (ii) This proved a good differentiator with only the better candidates scoring 2; referring to the reaction with water and oxygen. Most candidates referred to reaction with air but forgot about water. It was surprising to see the number of incorrect references to rusting.
- (b) The majority of candidates scored 1 usually for sodium and yellow. However, many of the candidates were unaware of the colours each metal produced.

Question 10

- (a) Weaker candidates struggled with the words electrolysis / electrode / anode etc. often appearing somewhere in the equation.
- (b) This was very poorly answered, few new of bauxite, with water being a common wrong answer.
- (c) The most common mark was for the idea of them being worn away. However, very few candidates were able to explain why. Common misconceptions are that the anodes react with the aluminium oxide or that they rust. Oxidation or reaction with oxygen was rarely mentioned.

Question 11

- (a) Sam, (b) Daly and (c) Daly were all well answered.
- (d) Most candidates scored with 1.25 m/s; only the weaker candidates failed to score at least 2 marks. The most common error was to give incorrect units e.g. seconds or mps².

Question 12

- (a) The majority of candidates correctly gave 4 x 4. However, a significant number gave motorbike.
- (b) Better candidates gave a good explanation. However, weaker candidates often referred to weight despite it being stated that it is the same in the rubric.
- (c) This was well answered, most putting petrol as the correct response, although some incorrectly said coal.
- (d) The use of solar power was fairly well understood although only the better candidates linked the use of sun / light to electricity production. Weaker candidates often referred to heat from the sun.

Question 13

- (a)
 - (i) Most scored with 9.
 - (ii) Most correctly referred to an increase.
 - (iii) Most scored with responses of tiredness or alcohol intake. The main errors were in references to factors affecting braking distance.
- (b) Most scored both marks for correct response of 8000. A few candidates seemed to incorrectly divide 2000 by 4 rather than multiply.
- (d)
 - (i) Many correctly scored with referring to damage.
 - (ii) Again this was very well answered with the most common correct response being airbag.

B623/02 Unit 1: Modules B3, C3 and P3 Higher Tier

General Comments

Most examiners thought that this paper was of an appropriate standard for this examination and it seemed to yield a good spread of marks across the candidature.

However, there are still a significant number of candidates who would be better served by a Foundation Tier entry. These candidates could score some marks on the accessible physics calculations but found the more descriptive biology questions much more challenging.

The standard of writing and balancing chemical equations seems to be improving, with less candidates being penalised for using the incorrect 'size' numbers or letters.

Questions 3 (c), 8 (e) and 12 (a) all provided an opportunity to challenge the more able candidates and a number did rise to this challenge.

There were few indications that candidates were short of time on this paper.

Comments on Individual Questions

SECTION A - MODULE B3

Question 1

- (a) This was well answered with many candidates expressing their answers clearly to gain the two marks available. Weaker candidates tended to gain a mark for 'builds up in the vessels'. A few candidates failed to gain any marks because they wrote about veins or the vessels constricting or bursting.
- (b) Quite well answered by most candidates although some knew the vessel was an artery but failed to be specific. A number of candidates did not read the question carefully and thought it was a part of the heart ('ventricle', 'valve' and 'atrium' were seen regularly).
- (c) Good candidates gave the answer 'cells that have not differentiated (or specialised) yet' and also went on to explain what this meant. They often gave specific examples. Other candidates thought the cells could be or are genetically modified or could be used to repair other cells.
- (d) Good answers included details about the 'right to life' and 'ethical' and 'religious beliefs'. The idea of 'risks or side effects' and 'limitations on the use of resources' were credited but rarely seen. Answers that were not credited referred to 'cruelty to the mother', 'rejection of the tissues', 'increases mutation' and 'it is just wrong'.

Question 2

- (a) Generally well answered but the spelling of 'mitosis' came in a variety of forms. Some candidates failed to gain this mark because it was difficult to distinguish if the answer was due to poor spelling or whether the answer was meiosis. Common incorrect answers included 'asexual reproduction', 'cloning' and 'tissue culture'.
- (b) (i) This was well answered, with just a few references to 'goldrush'.

- (ii) Many candidates incorrectly thought that cross breeding involved genetic engineering, removing the nucleus and placing it into the other plant, taking cuttings or tissue culture. Other candidates believed that by just growing potatoes next to each other they would merge their characteristics. These candidates also tended to explain or list that conditions that needed to be kept constant (light, temperature and water). Good candidates gave clear, well ordered answers with the idea that the process needs to be repeated over many generations.
- (iii) Generally well answered with most candidates writing about a 'reduction in gene pool' or the consequences in terms of disease. Answers referring to 'no variation' and 'all identical' did not gain credit.

Question 3

- (a) Generally answered correctly by the majority of candidates but some thought the answer was 'tail' or 'acrosome'.
- (b) Many poor answers were seen with candidates often writing about why sperm need tails, or answers that only explained that meiosis had occurred or that sperm contain half the chromosomes. Good candidates gave answers that covered all the possible marking points in their answer.
- (c)
 - (i) This question was answered poorly. Many candidates wrote about 'changes in the DNA structure', 'changes in the chromosome', 'mutations being bad' and 'without the acrosome the sperm cannot work'. Other answers included code and genetic changes. Very good candidates explained that the bases have changed and often gave examples (base deletion, base addition or changes to ATGC).
 - (ii) Many candidates simply repeated the question as their answer. Good candidates wrote about 'changing the sequence of amino acids' and the fact that it takes three bases to code for each amino acid.
 - (iii) Well answered but a number of candidates failed to gain this mark because they wrote that the 'egg is digested' or the 'egg cell wall is digested'. A few candidates thought the acrosome fuses or fertilises the egg cell nucleus, it gives the sperm energy or that it is pointed so it can get into the egg cell.

Question 4

- (a) This question was generally well answered with the most common answer being 'carbon dioxide'. A number of candidates were a little vague with their answers (waste) or wrote that blood was moving and so did not gain the mark. A few candidates misread the direction and wrote 'nutrients' and 'oxygen'.
- (b) This was quite well answered but a number of candidates gave the incorrect answers 'absorption', 'respiration', 'fertilisation' or 'reproduction'.
- (c) Generally well answered with the majority of good candidates using all the available answer space to explain how the adaptations speed up the transfer of materials. A number failed to gain the mark because they had 'thin cell walls' or 'more veins and arteries' as part of their answer. 'Large surface area' and 'thin walls' were the most common correct answers.

SECTION B - MODULE C3

Question 5

- (a) Generally well answered but 'oxygen' and 'nitrogen' were common incorrect answers.
- (b) This was slightly better answered than 5(a) but 'potassium' was seen a number of times.

Question 6

- (a) Most candidates gained the mark for 'strong forces or bonds of attraction', but few commented that the bonds were ionic and even fewer mentioned a giant ionic lattice. Many candidates lost marks because they wrote about 'intermolecular bonds'.
- (b) Many candidates incorrectly stated that there needed to be 'free electrons', 'it needs to be molten', 'it is not a metal', 'the particles are packed tightly so no electricity can flow between them' or 'there is too much space between the particles so the electricity cannot flow from one to another'.

Question 7

- (a) Generally poorly answered with a complete range of colours seen, 'green', 'orange' and 'brown' being common incorrect answers.
- (b) The word 'precipitate' was rarely seen. Most correct answers gave 'copper hydroxide'. Incorrect answers included 'copper oxide', 'copper' or 'copper carbonate'.

Question 8

- (a) This was well answered by the majority of candidates. Many added that the aluminium oxide was molten but this was ignored. A few candidates tried to include 'anode', 'oxygen', 'carbon-dioxide' and 'water' in the equation.
- (b) The idea that the anode was wearing away was well known but there were many references to heating/melting and that it was the aluminium oxide or electricity that was breaking it down. A number of candidates thought that the electrodes lose their charge or energy. Good candidates covered all the possible marking points with clear and well structured answers e.g. 'the anode wears away as it has reacted with oxygen to form carbon dioxide'.
- (c) Quite well answered but a number of candidates wrote ' e^{3-} ', $3Al$ or ' $Al - e$ '.
- (d) Again quite well answered but a number of candidates thought it was expensive because the anodes need to be replaced regularly.
- (e) Few candidates realised what the cryolite was used for. Many thought it was a catalyst or that it speeds up the reaction or that it reduced the melting / boiling point of aluminium.

Question 9

- (a) Quite well answered although a surprising number thought the activity increased.
- (b) Many candidates gained credit with 'iodine is less reactive than bromine' being the most common correct answer. A number of candidates thought chlorine, sodium or sodium bromide were involved in the explanation.
- (c) Candidates either knew the answer and expressed it clearly or had absolutely no idea. Poor answers included 'gain of electrons', 'electrons are reduced', 'atoms / ions are gained' and 'the molecule becomes negative'.

Question 10

- (a) Most candidates gained the mark for 'increases' but thought that sodium hydroxide was acidic.
- (b) Generally well answered but a surprisingly large number of candidates made no attempt to balance the equation. There were fewer errors with the sub-script numbers being larger than the letters and balancing numbers.

Question 11

- (a) (i) Most candidates gained one mark for the idea that the car might crash. However, some candidates found it difficult to express their ideas and tended to repeat the stem of the question without putting the numbers given into context.
- (ii) Very well answered, often with numerical examples to explain the relationship.
- (iii) Very well answered with the most popular answers being 'alcohol', 'drinking', 'tiredness' and 'distractions'.
- (b) Most candidates answered well, with clear workings and answer on the answer line. The most common incorrect answer involved candidates multiplying the 2000 by 10 before using the equation. This resulted in an answer of 80000.

Question 12

- (a) The majority of candidates gave the answer '4.4', failing to divide by 2. Shading of the area under the graph was very rarely seen.
- (b) (i) Generally well answered, with 'both forces increase' being the most common correct answer. Many candidates did not gain the mark because they failed to explain what had happen to the drag force (in relation to the swimming force). A number of candidates thought that the swimming force increased and the drag force decreased.
- (ii) Well answered, with 'balanced' being the most common answer. A number of answers referred to terminal speed.
- (c) Many correct answers were seen here with evidence of clear calculations and the answer on the answer line. Surprisingly, a number of candidates correctly divided 25/20 but failed to get the correct answer.

Question 13

- (a) This was very well answered. Nearly all the incorrect answers involved dividing 11 by 6.
- (b) Again, well answered with the most common correct answers being 'drives at different speeds' and 'different weights in the car'. Reference was made to the van being less streamline but explanations of why it was less streamline were often missing. A number of candidates compared cars with vans and so did not gain any marks.

Question 14

- (a) This question was poorly answered. There were many vague references to energy and the idea of crumple zones protecting people inside the car. Distance ideas tended to concentrate on stopping or breaking distances. References to forces were often associated with the forces being absorbed. Most of the candidates that gained a mark did so with the idea that the process occurs over a longer length of time.
- (b) This was generally well answered by good candidates who gained two marks for 'when the speed doubles the KE quadruples'. A number of candidates added to their explanation by the use of figures in some examples. Weaker candidates quoted the correct KE equation but gave muddled answers about the relationship between speed and KE or failed to mention that the energy involved was kinetic. A number referred to speed increasing and the crash being four times worse without including information about KE. A number of candidates wrote about stopping and breaking distance being worse with an increase in speed. Some candidates selected the wrong equation ($f = ma$) and tried unsuccessfully to use that to explain the relationship. The idea that energy is absorbed was rarely seen.

B624/01 Unit 2: Modules B4, C4 and P4

Foundation Tier

General Comments

This was the third occasion that this examination was available to be sat by candidates. There were approximately 300 candidates and marks ranged from 1 to 47 out of 60. Nearly 40% of the candidates achieved a grade C and there were a minority who might have been better targeted at higher tier.

The mean mark for the paper was 26.3 and the paper discriminated satisfactorily over the target grade range of G to C. The paper allowed candidates to demonstrate positive achievement in all three areas of science.

There was little evidence that candidates had insufficient time to complete the paper but there were a number of instances where parts of questions were omitted. Some candidates did not follow instructions regarding how to answer questions or how many answers to provide. Where the intentions of the candidate were clear, marks were awarded.

Candidates are encouraged to show how they work out the answer to numerical questions. In this way, credit can be given for showing how an answer is obtained, even if the answer is incorrect.

Comments on Individual Questions

SECTION A - MODULE B4

Question 1

The majority of candidates scored full marks. Some provided only one response for part (a) whilst others provided three – the three materials that do not rot being ringed.

Any mention of the sand helping the speed of decay led to no mark being scored for part (b).

Question 2

Whilst most correctly labelled the flower, or petals, some candidates wrote leaf. A significant number thought water was lost from the root of a plant.

Question 3

Less than a third of the candidates knew the meaning of the term producer. Most wrote that it was the start of a food chain or web. A similar number identified the source of energy as the Sun. Many thought it to be an organism from the food chain.

Those who drew the pyramid of biomass usually scored a mark unless they drew more than or less than four levels. Written descriptions were often confused.

Whilst many candidates scored a mark for realising the pests would eat the crops, few went on to mention the desire to improve yield.

Over half of the responses linked the death rate to the use of pesticides. Candidates who failed to score often just wrote about death rate or linked it to the year. The advantages of biological control are not well known. Most incorrectly said it would not harm the crops or it would kill the pests. Pesticides also do both of these

Question 4

Part (a) was generally well answered but few understood partially permeable. There was confusion between permeable and permanent. Many wrote about the amount of water that would be let through.

Question 5

Most scored one mark for decomposition but many confused respiration and photosynthesis.

Many candidates did not understand the meaning of element and listed glass, cans, bottles as being elements that need to be recycled in nature. Oxygen was the most common correct response.

SECTION B - MODULE C4

Question 6

Part (a) was well answered. Less than a half of the candidates knew that carbon dioxide is produced in an acid / carbonate reaction. Very few got carbon dioxide correct.

Most knew that a chloride is produced when sodium hydroxide reacts with hydrochloric acid. Only one in ten candidates knew a large scale use of sulfuric acid. Nearly a third did not respond.

Question 7

Most candidates believe that both nitrogen and hydrogen came from the air when ammonia is manufactured by the Haber process.

The symbol for a reversible reaction was known by half the candidates. Many wrote equals.

The majority of candidates could provide one factor affecting the cost of making ammonia.

Question 8

Two thirds identified diamond as the third structure for carbon.

Many candidates do not understand the meaning of the term property. Many wrote about uses of carbon.

Whilst half of the candidates knew the formula of Buckminster fullerene, a third failed to write down a use. Tennis rackets was a common answer.

Question 9

Many candidates wrote that names or symbols of the elements instead of the total number of different elements.

Most failed to calculate the relative formula mass. 69 was the most common answer as candidates just added up the three numbers.

Few could calculate percentage yield in part (c).

SECTION C - MODULE P4

Question 10

Many thought the floor was a conductor; many thought a current passed through the water pipes. An alarming number thought the pipes were connected to the live wire!

Just over half correctly identified the charge on the silk. Some did state that it was neutral. Many simply repeated the question by stating that the water was attracted towards the rod. There needed to be some understanding that this was caused by opposite charges.

Question 11

Fewer than half could write down the colours of the live and neutral wires in a plug. Whilst many reversed the colours, some did suggest connecting a green and yellow wire to the live terminal.

Only half knew that the earth wire was not needed in a double insulated plug. Many suggested the live wire.

The job of the fuse is not well understood. Many wrote about it controlling the amount of electricity. Some wrote about the fuse causing a short circuit, whilst others were confused between trip switches and fuses.

Question 12

Whilst the majority correctly identified the radiographer as taking X-ray pictures, stenographer proved to be an attractive distracter.

Many candidates misread part (b) and provided a use of electromagnetic waves in hospital instead of an example of another electromagnetic wave.

The question led candidates towards the answer of longitudinal and half scored the mark. Other simply stated sound. The use of ultrasound is reasonably well known but there is often lack of precision in the answer. Looking at babies is not sufficient to score a mark.

Question 13

About half of candidates identified uranium as the source of energy in a nuclear power station. Coal was a common distracter.

Many thought that materials placed in the core of a reactor would explode. Fewer than one fifth scored the mark.

Only a few candidates correctly mentioned fission or nuclear reaction as the way in which heat is produced in a reactor. Burning coal was the most common answer. The use of a turbine and the fact it is driven by steam is not well known.

B624/02 Unit 2: Modules B4, C4 and P4 Higher Tier

General Comments

The examination attracted a small entry of 885. From this entry only a small number of candidates, 20, achieved a mark less than 20. A number of candidates were seen who achieved over 40 marks.

Centres entry policy was very well targeted, with only a small proportion of candidates whose performance suggested that they should have taken the Foundation examination paper.

The mean mark for the examination paper was 37.4 and the highest mark awarded was 59, reflecting a higher ability entry than was entered in the comparable examination last January. The examination successfully discriminated between the target grades (A* to D).

Candidates must be careful to read questions requiring a tick as an answer. In question 12 (b) **one** tick was required; many candidates ticked more than one response.

Comments on Individual Questions

SECTION A - MODULE B4

Question 1

- (a) Candidates were able to draw pyramids of biomass. A few candidates tried to describe the pyramid but with little success.
- (b) Most candidates got parts (i), (ii), (iii) correct. In part (ii) some candidates failed to link death with change in pesticide use. A common error in part (iii) was the mention of organic farming and lack of eutrophication as benefits of biological control.

Question 2

- (a) Most candidates were able to answer part (i) but a number of candidates were unable to describe the meaning of partially permeable.
- (b) Candidates frequently incorrectly gave 'turgid' as their answer to part (b).

Question 3

- (a) Very few candidates understood that detritivores feed on decaying matter increasing the surface area for decomposers. Many candidates confused the detritivores as decomposers.
- (b) In part (b) many candidates failed to mention the microorganisms which were present in the displayed box. A common answer was 'things decay faster in the warmer conditions'.

Question 4

- (a) Answered by the majority of candidates.
- (b) Part (b) was answered well by more able candidates, the less able had no idea confusing fungi and detritivores as bacteria.

Question 5

- (a) and (b) Only the more able candidates were able to answer parts (a) and (b) correctly. In part (a) a number of candidates thought that oxygen was needed for photosynthesis or that the oxygen joined with the minerals and pulled them through. The meaning of the word hydroponics was not well understood by many candidates. It was a common belief that the plants would **not** require fertilisers or pesticides.

SECTION B - MODULE C4

Question 6

Part (a), (b), (c) and (d) were well answered.

- (a) Some candidates failed to name the indicator in part (a) and others gave litmus and iodine solution as incorrect alternatives.
- (d) Most candidates were able to complete the word equation in part (d), a credit to the schools.

Question 7

- (a) Parts (i) and (ii) were generally only answered correctly by more able candidates. In part (i) candidates failed to mention that the electrons are free or delocalised and in part (ii) there were many references to weak intermolecular bonds.
- (b) Part (i) was well answered but many vague answers were given as a use of nanotubes such as used in electrical wiring. Better answers referred to reinforcing graphite in tennis rackets.
- (c) Only the more able candidates correctly gave the answer allotrope, common incorrect responses being isotopes and isomers.

Question 8

- (a) It was a pleasure to see so many candidates able to balance a symbolic equation correctly.
- (b) Similarly, many candidates were able to calculate percentage yield in part (b).
- (c) Part (c) confused most candidates including able candidates. Very few candidates referred to atoms; the majority talked about mass or matter, the former being in the stem of the question.

Question 9

- (a) Most candidates correctly explained why an iron catalyst is used in part (i) a few incorrectly said 'because it has a high melting point'. Grade A and B candidates clearly explained why the optimum temperature was used in part (ii).
- (b) Most candidates correctly answered this question.
- (c) Candidates who got this question wrong spoke about the breaking down or decomposing of the fertiliser.

SECTION C - MODULE P4

Question 10

- (a) A number of candidates incorrectly referred to positive electrons in part (i). Part (ii) was not very well answered many candidates failing to mention that the rod and water have opposite charges.

- (b) Parts (i) and (ii) were in general well answered but many candidates used the word electricity instead of charge.

Question 11

- (a) The concept of 'double insulation' was poorly understood by the majority of candidates. Many candidates talked about plastic covering the wires of the plug ignoring the casing altogether. A common answer not credited was 'so no one gets electrocuted'.
- (b) Too many candidates confused current and voltage in their description of how a fuse works. Other candidates talked about the fuse breaking or short circuiting. A common incorrect answer was 'the fuse controls the electricity'.
- (c) Most candidates were able to do the calculation.

Question 12

- (a) Grade A candidates correctly described how X-rays are produced. Other candidates described how the image was formed.
- (b) Too many candidates ticked more than 1 box.
- (c) Candidates found this to be the most difficult question, the most common incorrect answers referring to the more harmful effects of gamma rays.
- (d) and (e) These parts were very well answered but in part (e) candidates should be encouraged to use the word scan for ultrasound to prevent vague answers like check pregnancy, look at baby, or check the heart.

Question 13

- (a) Burning was a common answer by less able candidates in part (i). The burning of fossil fuel was also prevalent. In part (ii), a number of candidates stated that steam turned the generator but many correctly wrote turbine.
- (b) Very pleasing to see that large numbers of candidates across the ability range were able to calculate the half life correctly.
- (c) Very surprised to find this question so badly answered. If this had been in the Chemistry section it might have received better responses. Most incorrect answers referred to the lead-209 as being unstable. Other candidates confused the nature of particles talking about electrons rather than neutrons.

Grade Thresholds

General Certificate of Secondary Education
 Additional Science B (Specification Code J641)
 January 2009 Examination Series

Unit Threshold Marks

Unit		Maximum Mark	A*	A	B	C	D	E	F	G	U
B623/01	Raw	60	-	-	-	36	29	22	16	10	0
	UMS	69	-	-	-	60	50	40	30	20	0
B623/02	Raw	60	46	37	28	20	13	9	-	-	0
	UMS	100	90	80	70	60	50	45	-	-	0
B624/01	Raw	60	-	-	-	30	23	17	11	5	0
	UMS	69	-	-	-	60	50	40	30	20	0
B624/02	Raw	60	48	39	30	22	12	7	-	-	0
	UMS	100	90	80	70	60	50	45	-	-	0

Specification Aggregation Results

Overall threshold marks in UMS (ie after conversion of raw marks to uniform marks)

	Maximum Mark	A*	A	B	C	D	E	F	G	U
J641	300	270	240	210	180	150	120	90	60	0

The cumulative percentage of candidates awarded each grade was as follows:

	A*	A	B	C	D	E	F	G	U	Total No. of Cands
J641	0.0	10.5	21.1	47.4	94.7	100.0	100.0	100.0	100.0	19

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

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