

Examiners' Report/ Principal Examiner Feedback

November 2010

GCSE

360Science

GCSE Science
Multiple Choice Paper C1b (5008)

GCSE Chemistry
Multiple Choice Paper C1b (5036)

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Foundation Tier

The first four questions of this foundation tier paper were generally well answered. Candidates showed a good understanding of the properties required of a useful fuel and most recognised the process of burning a fuel in oxygen as combustion. Candidates showed a clear understanding that hydrocarbons contain just carbon and hydrogen only, with 75% getting this correct.

Just 34% of candidates understood that when hydrogen burns, the only product is water, with 27% of candidates believing that carbon dioxide was produced and 26% believing that carbon monoxide was produced, 13% of candidates believed that no product was formed at all.

The process of making alcohol and its effects are well understood.

Questions 11 and 12 were well answered with candidates being able to link properties of materials to a use. Candidates were less sure of the application of smart materials. Only 45% of candidates recognised that a material which changed its properties in response to an external stimulus, such as temperature, is classed as a smart material.

Candidates found questions 14 and 15 challenging and did not show a sound understanding that oxygen is a gas which is not thought to be present in the early volcanic atmospheres. Just 31% of candidates knew that nitrogen makes up most of the Earth's atmosphere today.

Question 17 was poorly answered with 34% of candidates thinking that a product of the incomplete combustion of a hydrocarbon was sulphur dioxide. In question 18, 20% of candidates believed that incomplete combustion of a hydrocarbon occurred due to a lack of carbon dioxide and 18% believing it was due to a lack of hydrocarbon.

Questions 19-21 were generally well answered, candidates found it easy to apply knowledge of the properties of chlorine to everyday situations.

Candidates found it hard to apply knowledge of the process of fractional distillation to liquid air; with only 38% realising that liquid nitrogen and liquid oxygen can be separated due to their different boiling points.

Candidates showed a sound understanding of the terms hydrophilic and hydrophobic.

Higher Tier

Candidates generally answered questions 17-24 well; however 31% of candidates believed that a product of incomplete combustion of a hydrocarbon was carbon dioxide.

Question 25 was poorly answered with 52% of candidates believing that nanoparticles are smaller than individual atoms; understanding of day to day use of nanoparticles in applications such as sunscreen was sound, with 72% of candidates understanding that the nanoparticles could reflect ultraviolet light.

Understanding of the breathability of Gore-Tex in terms of its structure is not well understood, with only 38% of candidates understanding that the pores in the structure of Gore-Tex are larger than molecules in water vapour but at the same time being smaller than drops of water.

In question 28, 34% of candidates believed that methane would burn with a yellow, sooty flame during complete combustion.

Candidates could recall that carbon monoxide can be produced in faulty boilers and could explain how carbon monoxide affects ability of blood to carry oxygen.

The section on sodium chloride was well answered, with candidates showing a good understanding of the uses of sodium chloride and sodium hydroxide. However, only 31% of candidates realised that oxygen is not produced from seawater, with 37% thinking that chlorine was not produced from this source.

The final two sections on fuels and ethanol were well answered, the only question candidates found difficult in these sections was on the drawbacks of using hydrogen as a fuel for cars. Just 33% of candidates were able to understand that strong, heavy fuel tanks would be required to store the hydrogen and large amounts of energy is required to produce hydrogen.

Grade Boundaries - November 2010

Multiple Choice Papers - GCSE Science

Raw Mark Grade Boundaries

5005/5025	Max mark	A*	A	B	C	D	E	F	G
H	24	19	17	15	13	9	7		
F	24				18	15	12	9	6

5006/5026	Max mark	A*	A	B	C	D	E	F	G
H	24	17	15	13	12	8	6		
F	24				15	13	11	9	7

5007/5035	Max mark	A*	A	B	C	D	E	F	G
H	24	18	15	12	10	7	5		
F	24				17	14	11	8	5

5008/5036	Max mark	A*	A	B	C	D	E	F	G
H	24	19	17	15	14	9	6		
F	24				18	15	12	10	8

5009/5045	Max mark	A*	A	B	C	D	E	F	G
H	24	16	14	12	11	8	6		
F	24				14	12	10	8	6

5010/5046	Max mark	A*	A	B	C	D	E	F	G
H	24	17	15	13	11	8	6		
F	24				17	14	12	10	8

Uniform Mark Grade Boundaries for these units

	Max UMS	A*	A	B	C	D	E	F	G
H	40	36	32	28	24	20	18		
F	27				24	20	16	12	8

Note: On higher tier papers, the "allowed" grade E is calculated as half a grade width

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