

COMBINED SCIENCE

Paper 5129/01
Multiple Choice

<i>Question Number</i>	<i>Key</i>	<i>Question Number</i>	<i>Key</i>
1	D	21	B
2	A	22	C
3	C	23	C
4	C	24	B
5	D	25	D
6	B	26	A
7	C	27	C
8	A	28	A
9	D	29	D
10	D	30	A
11	B	31	B
12	B	32	D
13	A	33	B
14	D	34	C
15	A	35	B
16	C	36	B
17	D	37	B
18	B	38	D
19	C	39	C
20	A	40	A

General comments

No question proved to be very easy with only **Question 13** very difficult. **Question's 6, 9, 10 and 11** were difficult with widespread guessing evident, even among the better candidates.

Comments on specific questions (Physics)

Question 1, 3, 4 and 5 covered areas of the syllabus well known by candidates with each correct option (**D**, **C**, **C** and **D** respectively) attracting more than 70 % of responses. In **Question 1** some more able candidates chose a distractor in option **C**. The most popular incorrect response in **Question 3** was option **A** and in **Question 4 and 5** it was option **B**.

Question 2

This showed good discrimination with more able candidates correctly choosing option **A** and the majority of the less able option **C**.

Question 6

Convection as a result of density changes was not well known and resulted in widespread guessing among candidates, including the more able. Each option attracted an almost equal number of responses with some more able candidates electing for options **A** and **C**.

Question 7

This question discriminated well with option **A** the most popular of the incorrect options.

Question 8

This was well answered with 62 % of candidates choosing option **A** correctly. The remainder chose options evenly spread over the distractors.

Question 9

There was uncertainty among candidates, with more choosing the distractor option **A** than the key, option **D**. Option **B** attracted a significant response from more able candidates.

Question 10

The current in a simple series circuit with a parallel arrangement was not well known and resulted in widespread guessing from candidates with almost equal numbers choosing each option.

Question 11

The correct choice of fuse, option **B**, was understood by 25 % of candidates. Over 50 % favoured option **A**, a value just below the working current.

Question 12

This was well known and showed good discrimination. The less able candidates chose option **A**.

Question 13

Distinguishing between the relative ionising abilities of the radiations was beyond most candidates. A minority correctly chose option **A**. Most of the remaining candidates were almost equally divided between options **B** and **C**. Many of the more able candidates chose option **D**.

Comments on specific questions (Chemistry)

Question 14

The responses to this question indicate that there is a lack of understanding of the criteria for purity. Over 60 % of the candidates chose options **B** and **C**. A quarter of the candidates recognised that a pure substance boils at a fixed temperature and chose option **D**.

Question 15

Over half of the candidates, including a large proportion of the more able candidates, chose option **B**, a hydrogen ion, which consists of a proton. The particle which has the smallest mass of those offered is **A**, electron.

Question 16

There was evidence of guesswork particularly amongst the weaker candidates.

Question 17

This proved to be challenging for the majority of the candidates. Candidates should be aware that one line in the structure of a covalent molecule represents a shared pair of electrons.

Question 18

There was evidence of guesswork amongst many of the candidates. Some of the more able candidates correctly took into account the proportions of the reactants given in the stem of the question but many candidates simply added the masses of the reactants together and chose option **D**.

Question 19

A third of the candidates correctly identified the hydrogen ion as the cause of acidity. A large number of candidates chose option **B**, the chloride ion.

Question 20

There was evidence of guesswork amongst the weaker candidates. Candidates who did not know the trend in melting points of the alkali metals incorrectly chose option **C**.

Question 21

Almost 50 % of the candidates thought that zinc is higher in the reactivity series than aluminium and chose option **D**. The presence of a protective oxide layer on the surface of aluminium was not well known.

Question 22

This proved to be an easy question for the more able candidates.

Question 23

Candidates who selected the correct answer were aware that nitrogen oxide is produced when a hydrocarbon fuel is burned in an internal combustion engine.

Question 24

The conditions for the Haber process are well known by many of the candidates.

Question 25

This question proved difficult for the majority of the candidates. Almost 50 % of the candidates chose option **B** where the more massive alkane was incorrectly described as having a lower boiling point.

Question 26

Many of the more able candidates were aware that the test for an alkene is the decolourisation of bromine water and were able to recognise the alkenes as those molecules with a carbon to carbon double bond.

Question 27

Many of the more able candidates correctly identified the molecular formula of ethanol but a significant proportion of the candidates chose option **A**.

Comments on specific questions (Biology)

Question 28

It was pleasing to see that most candidates were able to identify the plant cell structures in a photomicrograph, rather than in the usual diagram.

Question 29

This question (on osmosis) discriminated well.

Question 30

Candidates had difficulty in interpreting the graph in this question. The most popular answer was to identify midnight as the time of maximum (rather than minimum) oxygen production.

Question 31-33

These were straightforward questions testing factual recall.

Question 34

In this respirometer experiment, most candidates knew that the indicator fluid will move towards the seeds, but there was confusion as to whether the seeds were absorbing oxygen or carbon dioxide.

Question 35

The commonest error was to opt for the pathway for oxygen, rather than carbon dioxide diffusion: perhaps the candidates did not read the question carefully enough.

Question 36

Most candidates were unclear about the action of the muscles in the iris.

Question 37-38

These questions worked well in discriminating between candidates.

Question 39

As last year, many candidates are unaware that the cotyledons are part of the embryo in a seed.

Question 40

This question, on breastfeeding, was well-answered.

