PHYSICS

Paper 1524/12
Multiple Choice (Core) 12

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

General comments

Although some candidates showed a good understanding of the syllabus, there were many whose knowledge of even basic facts was very limited. **Questions**, **2**, **3**, **5**, **11**, **13**, **16**, **18**, **22**, **26**, **31** and **33** were more challenging for candidates while **Questions 1**, **14**, **20** and **30** were usually answered correctly.

Comments on specific questions

Question 1

The vast majority of candidates knew that the volume of an irregular object can be found by immersing it in water contained in a partly filled measuring cylinder.

Question 2

Most candidates found this question challenging. Many candidates did not understand that the distance travelled is equal to the area under the graph. Some candidates either multiplied the initial or the final speed by the time elapsed.

Question 3

Some candidates did not read the question carefully enough and simply took the total time and divided that into the total distance travelled. Candidates should be careful to pay close attention to words in bold in the instructions. In this question, the emboldening told them to calculate the average speed when the aeroplane was in the air.

Question 5

Many candidates chose option **C**. This material has the lowest mass however it has a density three times that of the quoted value for water so it would not float.

Question 11

Only stronger candidates answered this correctly.

Question 13

Only the strongest candidates showed an understanding of the simple barometer.

Question 14

This question was usually answered correctly and the majority of candidates showed a good understanding of the process of evaporation.

Question 16

The solid line in this question showed the position of the bridge at the coldest part of the night, so as the temperature rose the bridge would expand. At no point would it contract and therefore it could not go through positions **B** or **C** to be at position **D,** leaving position **A** as the only alternative.

Question 18

Stronger candidates knew that when water boils there must be energy supplied to it, perhaps by electrical energy being transformed into thermal energy in a kettle's element, or more directly from the hot flame of burning gas. They also knew that as the temperature remains constant at 100°C during boiling, all the energy is used to give the molecules increased potential energy as they are separated from each other.

Question 20

Candidates had a good understanding of conduction.

Question 22

Only stronger candidates answered this question correctly.

Question 26

All of the incorrect options were popular choices in this question. A quick sketch of the field of a bar magnet should have been enough to eliminate options **A** and **C**. An understanding that the field lines show the direction of the force on an isolated N pole should have been sufficient to identify **D** as the key.

Question 30

Candidates had a good comprehension of simple circuitry.

Question 31

Most candidates simply divided the e.m.f. of the cell by the quoted value of the 2.0 Ω resistor, not understanding that the current in a series circuit is determined by the total resistance in the circuit (in this case 4.0 + 2.0 = 6.0 Ω).

Question 33

There was a lot of misunderstanding of the use of a fuse in a household circuit with only stronger candidates answering this correctly.