GCSE (9–1)

SCIENCE

J247, J257, J248, J258, J249, J259, J250, J260

For first teaching in 2016

Exam hints for students

www.ocr.org.uk/science
It's always more accurate to round once, for the final answer, and work with unrounded values on the calculator. In calculations always check the units and make conversions if needed. Make sure you give answers to the number of significant figures asked for after performing calculations. Show clear working for calculations. Error carried forward may mean a response still gains marks if a mistake is made.

The value of \( A \) is greater than that of \( \theta \)

Use precise terminology, so your answer shows the whole picture. Longer answers don’t always lead to more marks. If correct responses are contradicted, marks can be lost.

Hydrocarbons contain carbon and hydrogen only

Scientific diagrams of equipment should be schematic and factual (not three-dimensional and artistic).

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**Biology**

- Antibodies made by our immune system recognise and bind to the antigens found on the outside of foreign organisms.
- Food chains show the direction energy moves between organisms. Pyramids of biomass show total energy in each level.
- Make sure that your capital letters in a Punnett square are much bigger than the lower-case letters.
- Antibodies made by our immune system recognise and bind to the antigens found on the outside of foreign organisms.
- The substrate acts as a key and the enzyme as a lock. The active site is the specific part of the lock the key fits into.
- Many students did not understand the function of guard cells and the stomata.
- Practise Punnett squares and calculating probability of genetic diseases. Ensure you know different inheritance terms.

**Physics**

- A free body diagram is the scientific way to show the forces acting on an object. Most students showed artistic sketches instead.
- In circuit diagrams components must be connected and in the correct position. Ammeter in series, voltmeter in parallel.
- Sound waves move faster in denser mediums. e.g. Sound waves move faster in water than in air.
- The half-life of a radioactive source is the time taken for half its nuclei to decay and can be found using an activity-time graph.
- When drawing magnetic field lines, the arrows go from the north pole to the south pole and should not overlap.
- Energy can be stored or transferred between stores. There are not different types of energy – only different stores.
- The National Grid uses step-up and step-down transformers to reduce the current and increase voltage in transmission lines.
- Isotopes of an element have the same number of protons in the nucleus but different numbers of neutrons.

**Chemistry**

- Energy profile diagram arrows are single headed, show direction of energy change and extend to the limits of the change.
- Check equations for balancing errors after writing them. Remember that any charges should also be balanced.
- When writing the chemical formula of an ionic compound, remember the charges have to balance in ionic formulas.
- When drawing display formulae show all the bonds in the compound.
- Be clear as to whether an attraction is between molecules or between the atoms within a molecule.
- Make sure you know the names of the different organic homologous series.
- Atomic number is the smaller number: the number of protons in an atom. Atomic Mass is the larger number: the mass of an atom.
- When writing the structure of a metal, draw the delocalised electrons surrounding and in between the metal ions.
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