

Design & Technology

AQA GCSE

Nuclear Power

Materials required for questions

- Pencil
- Rubber
- Calculator

Instructions

- Use black ink or ball-point pen
- Try answer all questions
- Use the space provided to answer questions
- Calculators can be used if necessary
- For the multiple choice questions, circle your answer

Advice

- Marks for each question are in brackets
- Read each question fully
- Try to answer every question
- Don't spend too much time on one question

Good luck!

Q1. How is electricity generated in a nuclear power plant?

- A** By burning uranium to produce steam
- B** By using nuclear fusion to directly create electricity
- C** By splitting uranium atoms to produce heat, which generates steam

Q2. What is a major advantage of nuclear power over fossil fuels?

- A** It produces no waste
- B** It emits almost no greenhouse gases during operation
- C** It is cheaper to build than coal plants

Q3. What is a key disadvantage of nuclear power?

- A** It cannot generate electricity at night
- B** It is less efficient than burning coal
- C** It produces long-lasting radioactive waste

Q4. Why is nuclear power considered a reliable energy source?

- A** It can provide continuous baseload power
- B** It does not require any safety measures
- C** It is the cheapest form of energy production

Q5. Analyse and evaluate using nuclear power for electricity generation (6 marks)

Answers

Q1. C

Q2. B

Q3. C

Q4. A

Q5.

Advantages

- Low carbon emissions – Produces almost no greenhouse gases during operation, reducing climate impact.
- High energy output – Small amounts of uranium generate large electricity amounts (efficient).
- Reliable baseload power – Provides continuous energy (unlike intermittent solar/wind).
- Reduces fossil fuel dependence – Decreases reliance on imported coal/oil/gas.

Disadvantages

- Radioactive waste – Spent fuel remains hazardous for millennia; storage challenges.
- Risk of accidents – Meltdowns (e.g., Chernobyl, Fukushima) can cause long-term disasters.
- High costs/long construction – Expensive to build and takes years to complete.
- Proliferation risk – Technology could be misused for weapons.