**Design & Technology**

**AQA GCSE** Logo

Description automatically generated with low confidence

**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.