ENGLAND GCSE PHYSICS AQA HIGHER · UNIT 4 · 25 QUESTIONS

Atomic Structure — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **Hardcover books are stacked on a table. What force pulls them down?**

- A friction
- B gravity
- C air resistance
- D tension

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2 **Glass marbles are shaken in a tray. What does this model?**

- A particles bonding together
- B particles gaining energy
- C particles disappearing completely
- D particles freezing into place

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3 **Silver coins are made of a metal. Which property do metals have?**

A they are brittle

B they dissolve in water

C they conduct electricity

D they do not conduct electricity at all

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4 **A calculator is switched on. What does the battery transfer energy to?**

A the buttons only

B the case

C the screen only

D the circuits

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5 **A thermometer shows a patient's temperature is 39 degrees Celsius. Is this above or below normal body temperature?**

- A exactly normal
- B above normal
- C impossible to tell
- D below normal

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6 **A wristwatch ticks every second. How many ticks in a minute?**

- A 12
- B 100
- C 30
- D 60

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7 **Why is iodine-131 used to treat the thyroid gland?**

A it is absorbed by the bones

B it goes to the thyroid

C it makes the thyroid grow

D it stops all radiation

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8 **Which radiation is used in smoke alarms?**

A alpha

B neutron

C gamma

D beta

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9 **Which type of radiation is stopped by paper?**

A gamma

B beta

C neutron

D alpha

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10 **A sample's activity halves every 10 years. After 20 years, what fraction of the original activity remains?**

A 1

B 1/2

C 1/4

D 1/8

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11 **What happens to the activity of a sample over time?**

A it falls then rises

B it stays the same

C it falls

D it rises

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12 **What does fusion in the Sun make from hydrogen?**

A oxygen

B carbon dioxide

C helium

D uranium

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13 **An atom has a mass number of 16 and an atomic number of 8. How many neutrons does it have?**

- A 9
- B 10
- C 8
- D 7

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14 **What is a chain reaction in a nuclear reactor?**

- A neutrons cause more fissions
- B electrons jump between shells
- C the reactor heats up and melts
- D the fuel burns in air

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15 **A sample has a half-life of 5 days. What percentage of the sample is left after 20 days?**

- A 3%
- B 6%
- C 12%
- D 94%

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16 **Why do workers handling radioactive sources wear protective clothing?**

- A to keep them warm
- B to make them visible
- C to stop skin contamination
- D to block all radiation completely

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17 **In beta decay, what happens to the mass number of the nucleus?**

A it falls by 1, like a proton

B it falls by 4, like in alpha decay

C it rises by 1, like the atomic number

D it stays the same

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18 **Where does nuclear fusion happen naturally?**

A in the Sun

B in the Moon

C in the Earth

D in power stations

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19 **A sample has an activity of 800 counts per minute. After 3 half-lives, what is its activity?**

- A 100
- B 200
- C 400
- D 50

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20 **A radioactive sample has an activity of 400 Bq. What is its activity after 2 half-lives?**

- A 100 Bq
- B 200 Bq
- C 400 Bq
- D 50 Bq

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21 **What is irradiation?**

A exposure to radiation

B a type of decay

C contamination with a source

D a type of fission

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22 **Why are gamma rays used to sterilise medical equipment?**

A they make the equipment stronger

B they kill bacteria

C they heat the equipment up

D they make the equipment radioactive

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23 **Why is alpha used in smoke alarms?**

- A it is very penetrating
- B it is stopped by smoke
- C it is not ionising
- D it has a long half-life

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24 **What conditions are needed for nuclear fusion?**

- A high temperature and pressure
- B no pressure at all
- C very low temperature, near freezing
- D darkness and cold

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25

What does the moderator do in a nuclear reactor?

A it slows neutrons down

B it speeds neutrons up

C it absorbs all the neutrons

D it makes the fuel

Understand It with Pulse

Flag a mistake

ANSWER KEY

1.	B	**10.**	C	**19.**	A
2.	B	**11.**	C	**20.**	A
3.	C	**12.**	C	**21.**	A
4.	D	**13.**	C	**22.**	B
5.	B	**14.**	A	**23.**	B
6.	D	**15.**	B	**24.**	A
7.	B	**16.**	C	**25.**	A
8.	A	**17.**	D		
9.	D	**18.**	A		

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