ENGLAND GCSE PHYSICS AQA FOUNDATION · 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 gravity
- B air resistance
- C tension
- D friction

Understand It with Pulse | Flag a mistake

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

- A the buttons only
- B the circuits
- C the case
- D the screen only

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3 **A wristwatch measures time. What is the unit of time?**

A the second

B the hour

C the day

D the minute

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4 **Silver coins conduct electricity well. Why?**

A they are shiny and reflective

B they are cold

C they are heavy

D they have free electrons

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5 **Glass marbles in a tray are used as a model for particles in a solid. What do the marbles show?**

- A particles move freely through space
- B particles flow past each other easily
- C particles are far apart from each other
- D particles vibrate in fixed positions

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6 **A thermometer measures temperature in degrees Celsius. What is the freezing point of water on this scale?**

- A 100
- B 10
- C 32
- D 0

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7 **A sample's activity halves every 5 years. After 10 years, what fraction of the original activity remains?**

- A 1/4
- B 1/8
- C 1/2
- D 1

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8 **What is nuclear fission?**

- A splitting a large nucleus
- B joining small nuclei together
- C adding electrons to atoms
- D removing electrons from atoms

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

A uranium

B oxygen

C carbon dioxide

D helium

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10 **A sample has a half-life of 10 years. After 20 years, what fraction remains?**

A 1/2

B 1/8

C 3/4

D 1/4

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11 **Why is a short half-life source chosen for a medical tracer?**

- **A** so it is cheaper to make
- **B** so it stays in the body for years
- **C** it decays quickly
- **D** so it can be reused

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12 **What is the difference between irradiation and contamination?**

- **A** irradiation means the source is inside the body
- **B** there is no difference
- **C** contamination only affects plants
- **D** the source is on the body

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13 **An atom has a mass number of 12 and an atomic number of 6. How many neutrons does it have?**

A 8

B 6

C 7

D 5

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14 **What do control rods do in a nuclear reactor?**

A they absorb neutrons

B they cool the water

C they speed up the neutrons

D they add more fuel

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

- **A** it stays the same
- **B** it rises by 1, like the atomic number
- **C** it falls by 4, like in alpha decay
- **D** it falls by 1, like a proton

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

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

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

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

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18 **A sample has an activity of 1600 counts per minute. After 2 half-lives, what is its activity?**

- A 400
- B 200
- C 800
- D 1600

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19 **Where does fusion happen naturally?**

A in a power station

B in the Earth

C in the Sun

D in the Moon

Understand It with Pulse | Flag a mistake

20 **Which releases more energy per kilogram of fuel, fission or fusion?**

A fission

B neither releases energy

C fusion

D they release the same

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

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

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22 **A sample starts with 8000 counts per minute. After one half-life, what is the count rate?**

- A 4000
- B 2000
- C 16000
- D 8000

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23 **What does background radiation come from?**

- A the Sun only
- B rocks, air, space, medicine
- C mobile phones only
- D power stations only, nowhere else

Understand It with Pulse | Flag a mistake

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

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

Understand It with Pulse | Flag a mistake

25 **In beta decay, what happens to the atomic number of the nucleus?**

A it falls by 1

B it stays the same

C it rises by 1

D it rises by 4

Understand It with Pulse | Flag a mistake

ANSWER KEY

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

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