ENGLAND GCSE COMBINED SCIENCE EDEXCEL HIGHER · UNIT 22 · 25 QUESTIONS

Radioactivity — 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 so it can be fixed.

1 **A thermometer is placed in hot water. What happens to the liquid inside the thermometer?**

- A it expands
- B it freezes
- C it evaporates
- D it contracts

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2 **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 vibrate in fixed positions
- C particles are far apart from each other
- D particles flow past each other easily

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

A the day

B the hour

C the minute

D the second

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4 **A calculator uses a battery. What energy is stored in the battery?**

A kinetic energy of motion

B light energy from the Sun

C chemical energy

D thermal energy from heat

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5 **Hardcover books have mass. What is mass measured in?**

A joules

B watts

C newtons, the unit of force

D kilograms

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

A they are brittle

B they do not conduct electricity at all

C they conduct electricity

D they dissolve in water

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7 **A nucleus gives out an alpha particle. What is the alpha particle?**

- A two protons and two neutrons
- B pure energy
- C one proton only
- D one fast electron, like a beta particle

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

- A 24%
- B 88%
- C 12%
- D 6%

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

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

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10 **A sample has an activity of 3200 counts per minute. After 3 half-lives, what is its activity?**

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

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11 **What is nuclear fission?**

A removing electrons from atoms

B joining small nuclei together

C adding electrons to atoms

D splitting a large nucleus

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

A they add more fuel

B they speed up the neutrons

C they absorb neutrons

D they cool the water

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

A it decays quickly

B so it stays in the body for years

C so it can be reused

D so it is cheaper to make

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14 **An atom has a mass number of 23 and an atomic number of 11. How many neutrons does it have?**

A 11

B 14

C 13

D 12

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

A 16000

B 8000

C 4000

D 2000

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16 **Why is fusion hard to use in a power station on Earth?**

A fusion only works in space

B there is no hydrogen on Earth

C holding the hot fuel is hard

D fusion releases no energy

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17 **A radioactive sample has an activity of 1600 Bq. What is its activity after 2 half-lives?**

A 400 Bq

B 200 Bq

C 800 Bq

D 1600 Bq

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

A to block all radiation completely

B to stop skin contamination

C to make them visible

D to keep them warm

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19 **Which type of radiation is stopped by aluminium?**

A gamma

B alpha

C neutron

D beta

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

A 3%

B 6%

C 94%

D 12%

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

A in the Sun

B in power stations

C in the Moon

D in the Earth

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22 **A sample has an activity of 3200 counts per minute. After 2 half-lives, what is its activity?**

A 1600

B 800

C 400

D 3200

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23 **How can radiation be stopped?**

- A by cooling the source
- B by heating the source
- C by washing the source
- D by shielding

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24 **What is released when a uranium nucleus splits?**

- A energy and neutrons
- B heat and oxygen
- C light and sound only
- D protons and electrons

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25

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

A it is absorbed by the bones

B it stops all radiation

C it makes the thyroid grow

D it goes to the thyroid

Understand It with Pulse

Flag a mistake

ANSWER KEY

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

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