NOVA SCOTIA PHYSICS 12 · UNIT E

Modern Physics and Radioactivity — Practice Test

Nova Scotia Physics 12 • 25 questions

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 **A sample starts with 100 grams of a radioactive isotope. After 2 half lives the mass remaining, in grams, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

2 **A sample starts with 100 grams of a radioactive isotope. After 3 half lives the mass remaining, in grams, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

3 **A sample starts with 80 grams of a radioactive isotope. After 1 half lives the mass remaining, in grams, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

4 **A sample decays for 30 years. Its half life is 10 years. The number of half lives elapsed is**

ANSWER _____

Understand It with Pulse | Flag a mistake

5 **A sample decays for 20 years. Its half life is 5 years. The number of half lives elapsed is**

ANSWER _____

Understand It with Pulse | Flag a mistake

6 **A sample decays for 60 years. Its half life is 20 years. The number of half lives elapsed is**

ANSWER _____

Understand It with Pulse | Flag a mistake

7 **Light photons of energy 5 electronvolts strike a metal with work function 2 electronvolts. The maximum kinetic energy of emitted electrons, in electronvolts, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

8 **Light photons of energy 6 electronvolts strike a metal with work function 2 electronvolts. The maximum kinetic energy of emitted electrons, in electronvolts, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

9 **Light photons of energy 4 electronvolts strike a metal with work function 1 electronvolts. The maximum kinetic energy of emitted electrons, in electronvolts, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

10 **A photon has energy 2 electronvolts. A photon of twice the frequency has energy, in electronvolts, of**

ANSWER _____

Understand It with Pulse | Flag a mistake

11 **A photon has energy 3 electronvolts. A photon of twice the frequency has energy, in electronvolts, of**

ANSWER _____

Understand It with Pulse | Flag a mistake

12 **A photon has energy 1.5 electronvolts. A photon of twice the frequency has energy, in electronvolts, of**

ANSWER

Understand It with Pulse | Flag a mistake

13 **A radio wave has frequency 150 megahertz. Using the speed of light as 300 million metres per second, its wavelength, in metres, is**

ANSWER

Understand It with Pulse | Flag a mistake

14 **A radio wave has frequency 600 megahertz. Using the speed of light as 300 million metres per second, its wavelength, in metres, is**

ANSWER

Understand It with Pulse | Flag a mistake

15 **A radio wave has frequency 100 megahertz. Using the speed of light as 300 million metres per second, its wavelength, in metres, is**

ANSWER

Understand It with Pulse | Flag a mistake

16 **A mass of 1 kilograms is converted to energy. Using the speed of light as 300 million metres per second, the energy, in joules, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

17 **A mass of 2 kilograms is converted to energy. Using the speed of light as 300 million metres per second, the energy, in joules, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

18 **A mass of 0.5 kilograms is converted to energy. Using the speed of light as 300 million metres per second, the energy, in joules, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

19 **A photon is a packet of**

A light energy

B matter

C charge

D sound

Understand It with Pulse | Flag a mistake

20 **The photoelectric effect shows that light behaves as**

A waves only

B particles

C sound

D heat only

Understand It with Pulse | Flag a mistake

21 **Alpha radiation is stopped by**

A a few centimetres of lead

B thick concrete only

C paper

D nothing

Understand It with Pulse | Flag a mistake

22 **Beta radiation is a stream of fast moving**

A protons

B helium nuclei

C photons

D electrons

Understand It with Pulse | Flag a mistake

23 **Gamma radiation is**

A high energy electromagnetic waves

B helium nuclei

C electrons

D neutrons

Understand It with Pulse | Flag a mistake

24 **Nuclear fission is the splitting of a**

A light nucleus into parts

B heavy nucleus into smaller nuclei

C atom into electrons

D molecule into atoms

Understand It with Pulse | Flag a mistake

25 **Nuclear fusion joins light nuclei and releases energy in the**

A Earth core only

B Moon

C Sun

D laboratory only

Understand It with Pulse | Flag a mistake

ANSWER KEY

1.	25	**10.**	4	**19.**	A
2.	12.5	**11.**	6	**20.**	B
3.	40	**12.**	3	**21.**	C
4.	3	**13.**	2	**22.**	D
5.	4	**14.**	0.5	**23.**	A
6.	3	**15.**	3	**24.**	B
7.	3	**16.**	9e+16	**25.**	C
8.	4	**17.**	1.8e+17		
9.	3	**18.**	4.5e+16		

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