ONTARIO PHYSICS, GRADE 11, UNIVERSITY PREPARATION (SPH3U) · UNIT C · 25 QUESTIONS

Energy and Society — 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 **A machine does 100 joules of work in 10 seconds. What is its power in watts?**



ANSWER

Understand It with Pulse | Flag a mistake

2 **A machine has useful energy output 80 joules and total energy input 100 joules. What is its efficiency as a percent?**

ANSWER

Understand It with Pulse | Flag a mistake

3 **A force of 20 newtons pushes an object 5 metres in the direction of the force. How much work in joules is done?**

ANSWER _____

Understand It with Pulse | Flag a mistake

4 **A renewable energy source is one that**

A will run out quickly

B produces no energy

C is replenished naturally on a human timescale

D is only fossil fuel

Understand It with Pulse | Flag a mistake

5 **As a pendulum swings, its energy changes mainly between**



A chemical and thermal

B kinetic and gravitational potential

C electrical and light

D nuclear and kinetic

Understand It with Pulse | Flag a mistake

6 **At the highest point of a pendulum swing, its energy is mainly**

- A kinetic
- B thermal
- C gravitational potential
- D electrical

Understand It with Pulse | Flag a mistake

7 **Burning fossil fuels releases carbon dioxide, which contributes to**

- A climate change through the greenhouse effect
- B ozone depletion only
- C acid rain only in oceans
- D soil erosion only

Understand It with Pulse | Flag a mistake

8 **Efficiency is calculated as**

A useful output ÷ total input, × 100 percent

B total input ÷ useful output, × 100 percent

C useful output + total input

D total input - useful output only

Understand It with Pulse | Flag a mistake

9 **Energy cannot be created or destroyed, only transferred or transformed. This is the law of**

A conservation of momentum

B universal gravitation

C inertia

D conservation of energy

Understand It with Pulse | Flag a mistake

10 **Gravitational potential energy depends on**



A speed only

B mass, gravity, and height

C temperature only

D volume only

Understand It with Pulse | Flag a mistake

11 **In a hydroelectric dam, the main energy transformation is from**

A gravitational potential to kinetic to electrical

B chemical to electrical

C nuclear to thermal

D light to chemical

Understand It with Pulse | Flag a mistake

12 **In a solar panel, the main energy transformation is from**

A thermal to kinetic

B light to electrical

C chemical to thermal

D kinetic to electrical

Understand It with Pulse | Flag a mistake

13 **Kinetic energy depends on**

A mass only

B speed only

C mass and speed^2

D height only

Understand It with Pulse | Flag a mistake

14 **Nuclear energy comes mainly from**

A burning uranium

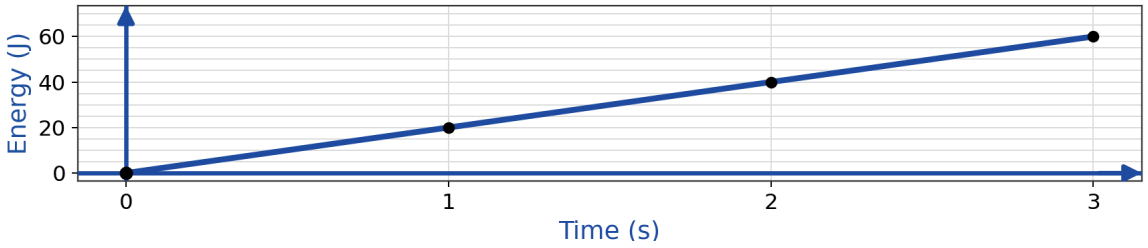
B fission of heavy nuclei such as uranium

C fusion of hydrogen in a reactor

D chemical reactions

Understand It with Pulse | Flag a mistake

15 **The graph shows energy transferred by a motor against time. How much energy in joules has been transferred after 3 seconds?**



ANSWER

Understand It with Pulse | Flag a mistake

16 **The SI unit of energy is the**

A watt

B joule

C newton

D metre

Understand It with Pulse | Flag a mistake

17 **The SI unit of power is the**

A joule

B newton

C watt

D kilogram

Understand It with Pulse | Flag a mistake

18 **Thermal energy transfer by conduction occurs mainly in**

A empty space

B liquids only by bulk movement

C solids, by particle vibrations passing energy along

D gases only

Understand It with Pulse | Flag a mistake

19 **What is the gravitational potential energy in joules of a 2 kilogram object at height 10 metres, using 10 newtons per kilogram for gravity?**

ANSWER

Understand It with Pulse | Flag a mistake

20 **What is the kinetic energy in joules of a 2 kilogram object moving at 10 metres per second?**



ANSWER

Understand It with Pulse | Flag a mistake

21 **A machine does 200 joules of work in 20 seconds. What is its power in watts?**

ANSWER _____

Understand It with Pulse | Flag a mistake

22 **A machine has useful energy output 150 joules and total energy input 200 joules. What is its efficiency as a percent?**

ANSWER _____

Understand It with Pulse | Flag a mistake

23 **A force of 10 newtons pushes an object 12 metres in the direction of the force. How much work in joules is done?**

ANSWER _____

Understand It with Pulse | Flag a mistake

24 **A machine does 150 joules of work in 5 seconds. What is its power in watts?**

ANSWER _____

Understand It with Pulse | Flag a mistake

25 **A machine has useful energy output 90 joules and total energy input 120 joules. What is its efficiency as a percent?**



ANSWER

Understand It with Pulse | Flag a mistake

ANSWER KEY

1. 10
2. 80
3. 100
4. C
5. B
6. C
7. A
8. A
9. D
10. B
11. A
12. B
13. C
14. B
15. 60
16. B
17. C
18. C
19. 200
20. 100
21. 10
22. 75
23. 120
24. 30
25. 75

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