ALASKA PHYSICS · UNIT 3 · 25 QUESTIONS

Electricity, Magnetism, and Waves — 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 current of 4 A flows through a resistor of 5 ohms. The voltage across it is**



- **A** 0.8 V
- **B** 9 V
- **C** 20 V
- **D** 1.25 V

Understand It with Pulse | Flag a mistake

2 **A voltage of 30 V is applied across a 6 ohm resistor. The current is**

- A 5 A
- B 180 A
- C 36 A
- D 0.2 A

Understand It with Pulse | Flag a mistake

3 **Resistors of 5 ohms and 7 ohms in series have total resistance**

- A 2.9 ohms
- B 35 ohms
- C 12 ohms
- D 0.71 ohms

Understand It with Pulse | Flag a mistake

4

Resistors of 4 ohms and 12 ohms in parallel have total resistance

A 3 ohms

B 48 ohms

C 0.33 ohms

D 16 ohms

Understand It with Pulse

Flag a mistake

5 **A device uses current 3 A at voltage 20 V. Its electric power is**



A 6.7 W

B 23 W

C 0.15 W

D 60 W

Understand It with Pulse | Flag a mistake

6 **If the distance between two point charges triples, the electric force between them becomes**

A three times

B one third

C nine times

D one ninth

Understand It with Pulse | Flag a mistake

7 **Like electric charges**

A repel

B have no effect

C always cancel

D attract

Understand It with Pulse | Flag a mistake

8 **The electric field at a point is defined as the force per unit**

A mass

B charge

C distance

D time

Understand It with Pulse | Flag a mistake

9 **In a series circuit, the quantity that is the same through every part is the**

A voltage

B resistance

C current

D power

Understand It with Pulse | Flag a mistake

10 **In a parallel circuit, the quantity that is the same across every branch is the**

A charge

B current

C voltage

D resistance

Understand It with Pulse | Flag a mistake

11 **A wave has frequency 6 Hz and wavelength 3 m. Its speed is**



A 2 m/s

B 9 m/s

C 18 m/s

D 0.5 m/s

Understand It with Pulse | Flag a mistake

12 **A wave has period 0.25 s. Its frequency is**

A 0.25 Hz

B 4 Hz

C 0.0625 Hz

D 25 Hz

Understand It with Pulse | Flag a mistake

13 **Sound travels fastest in**

A a vacuum

B air

C water

D steel

Understand It with Pulse | Flag a mistake

14 **A magnetic field exerts a force on a charged particle only when the particle is**



A at rest

B moving

C neutral

D inside a wire

Understand It with Pulse | Flag a mistake

15 Use $k = 9 \times 10^9$ N m²/C². Two charges of 2 microcoulombs and 3 microcoulombs are 0.3 m apart. The electric force between them is

- A 6 N
- B 0.06 N
- C 60 N
- D 0.6 N

Understand It with Pulse | Flag a mistake

16 A force of 12 N acts on a charge of 3 C. The electric field strength is

- A 36 N/C
- B 0.25 N/C
- C 15 N/C
- D 4 N/C

Understand It with Pulse | Flag a mistake

17 **A device of power 60 W runs for 10 s. The energy it uses, in joules, is _____**

ANSWER

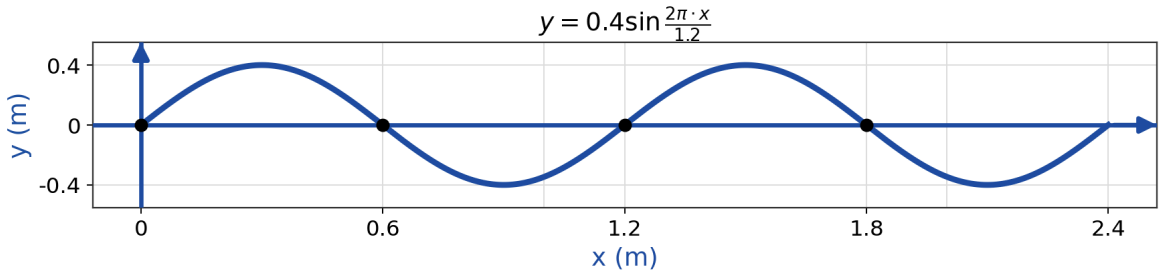
Understand It with Pulse | Flag a mistake

18 **A voltage of 36 V is applied across a 9 ohm resistor. The current, in amperes, is ____**

ANSWER

Understand It with Pulse | Flag a mistake

19 **The graph shows the displacement of a wave against position. The wavelength of the wave is**



A 0.40 m

B 1.20 m

C 2.40 m

D 0.80 m

Understand It with Pulse | Flag a mistake

20 **A changing magnetic field through a coil induces a**



A current

B resistance

C charge

D mass

Understand It with Pulse | Flag a mistake

21 **If the frequency of a sound wave increases, its pitch**



A gets lower

B gets higher

C stays the same

D becomes zero

Understand It with Pulse | Flag a mistake

22 **Which wave is longitudinal**

A sound

B light

C a water surface wave

D a radio wave

Understand It with Pulse | Flag a mistake

23 **Adding another resistor in series makes the total resistance**

A decrease

B stay the same

C increase

D become zero

Understand It with Pulse | Flag a mistake

24 **A wave has frequency 170 Hz and wavelength 2 m. Its speed, in meters per second, is _____**

ANSWER _____

Understand It with Pulse | Flag a mistake

25 **A voltage of 48 V drives a current of 4 A. The resistance, in ohms, is _____**

ANSWER _____

Understand It with Pulse | Flag a mistake

ANSWER KEY

1. C
2. A
3. C
4. A
5. D
6. D
7. A
8. B
9. C
10. C
11. C
12. B
13. D
14. B
15. D
16. D
17. 600
18. 4
19. B
20. A
21. B
22. A
23. C
24. 340
25. 12

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