ALASKA PHYSICS · FINAL EXAM · 50 QUESTIONS

Final Exam — 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 **An object moves with initial speed 8 m/s and acceleration 3 m/s² for 4 s. Its displacement is**

- A 56 m
- B 32 m
- C 44 m
- D 80 m

Understand It with Pulse | Flag a mistake

2 **A 6 kg object moves at 4 m/s. Its kinetic energy is**

- A 24 J
- B 48 J
- C 12 J
- D 96 J

Understand It with Pulse | Flag a mistake

3 **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

4 **Light travels at 3.0×10^8 m/s in a vacuum. In a material with refractive index 1.5, its speed is**

- **A** 1.5×10^8 m/s
- **B** 2.0×10^8 m/s
- **C** 3.0×10^8 m/s
- **D** 4.5×10^8 m/s

Understand It with Pulse | Flag a mistake

5 **Use g = 10 m/s². An object dropped from rest falls for 5 s. Its speed then, in meters per second, is _____**

ANSWER _____

Understand It with Pulse | Flag a mistake

6 **A machine does 300 J of work in 15 s. Its power is**

A 20 W

B 0.05 W

C 315 W

D 4500 W

Understand It with Pulse | Flag a mistake

7 **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

8 **A sample of 80 g of a radioactive material has a half life of 4 days. After 12 days, the mass remaining is**

A 40 g

B 20 g

C 10 g

D 5 g

Understand It with Pulse | Flag a mistake

9 **On a position time graph, the slope of the line gives the**

- A acceleration
- B force
- C velocity
- D momentum

Understand It with Pulse | Flag a mistake

10 **In a closed system with no outside forces, the total momentum before a collision compared with after is**

- A the same
- B always smaller
- C zero
- D always larger

Understand It with Pulse | Flag a mistake

11 **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

12 **The graph shows photon energy against wavelength. The photon energy at a wavelength of 620 nm is**

- A 4 eV
- B 6 eV
- C 1 eV
- D 2 eV

Understand It with Pulse | Flag a mistake

13 **Forces of 50 N east and 20 N west act on an object. The net force is**

A 70 N east

B 70 N west

C 30 N west

D 30 N east

Understand It with Pulse | Flag a mistake

14 **A 2 kg object moving at 6 m/s collides and sticks to a stationary 4 kg object. Their common speed is**

A 6 m/s

B 2 m/s

C 12 m/s

D 3 m/s

Understand It with Pulse | Flag a mistake

15 **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

16 **Light from a galaxy moving away from Earth is redshifted, which means its wavelength is**

A the same

B zero

C shorter

D longer

Understand It with Pulse | Flag a mistake

17 **Use g = 10 m/s². An object dropped from rest falls for 4 s. The distance it falls is**

- **A** 40 m
- **B** 160 m
- **C** 80 m
- **D** 20 m

Understand It with Pulse | Flag a mistake

18 **Use g = 10 m/s². A 4 kg object is 5 m above the ground. Its gravitational potential energy, in joules, is ____**

ANSWER _____

Understand It with Pulse | Flag a mistake

19 **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

20 **Which wave can be polarized**

A sound

B light

C both sound and light

D neither

Understand It with Pulse | Flag a mistake

21 **An object moves in a circle at speed 8 m/s with radius 16 m. Its centripetal acceleration is**

A 0.5 m/s²

B 2 m/s²

C 128 m/s²

D 4 m/s²

Understand It with Pulse | Flag a mistake

22 **The work energy theorem says the net work on an object equals its change in**

A potential energy

B kinetic energy

C momentum

D power

Understand It with Pulse | Flag a mistake

23 **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

24 **A hot gas gives a spectrum of bright lines. This is called an**

- **A** emission spectrum
- **B** continuous spectrum
- **C** absorption spectrum
- **D** diffraction spectrum

Understand It with Pulse | Flag a mistake

25 **An object travels 150 m in 15 s. Its average speed, in meters per second, is ____**

ANSWER _____

Understand It with Pulse | Flag a mistake

26 **An impulse changes an object**

A mass

B momentum

C weight

D volume

Understand It with Pulse | Flag a mistake

27 **Which wave is longitudinal**

A sound

B light

C a water surface wave

D a radio wave

Understand It with Pulse | Flag a mistake

28 **Use E = 1240/wavelength in nm in eV. A photon of wavelength 310 nm has energy, in electron volts, ____**

ANSWER _____

Understand It with Pulse | Flag a mistake

29 **Displacement differs from distance because displacement includes**

A only the total path length

B only the time taken

C only the speed

D direction

Understand It with Pulse | Flag a mistake

30 **A 5 kg object at rest is pushed by a 15 N force for 4 s. Its final momentum, in kilogram meters per second, is ____**

ANSWER _____

Understand It with Pulse | Flag a mistake

31 **A current of 5 A flows through a resistor of 3 ohms. The voltage across it is**

- A 8 V
- B 15 V
- C 1.67 V
- D 45 V

Understand It with Pulse | Flag a mistake

32 **A ray of light hits a mirror at an angle of incidence of 50 degrees. What is the angle between the incoming ray and the reflected ray?**

- A 50 degrees
- B 100 degrees
- C 0 degrees
- D 40 degrees

Understand It with Pulse | Flag a mistake

33 **A projectile has horizontal speed 25 m/s and stays in the air for 4 s. Its horizontal range is**

- A 25 m
- B 50 m
- C 100 m
- D 125 m

Understand It with Pulse | Flag a mistake

34 **A 5 kg object moves at 8 m/s. Its kinetic energy is**

- A 40 J
- B 160 J
- C 20 J
- D 80 J

Understand It with Pulse | Flag a mistake

35 **Resistors of 8 ohms and 8 ohms in parallel have total resistance**

A 16 ohms

B 64 ohms

C 4 ohms

D 1 ohm

Understand It with Pulse | Flag a mistake

36 **A photon of energy 5.0 eV hits a metal with work function 3.0 eV. The maximum kinetic energy of an emitted electron is**

A 15 eV

B 8.0 eV

C 1.67 eV

D 2.0 eV

Understand It with Pulse | Flag a mistake

37 **An object travels 240 m in 16 s. Its average speed, in meters per second, is ____**

ANSWER _____

Understand It with Pulse | Flag a mistake

38 **A machine does 500 J of work in 25 s. Its power is**

A 20 W

B 0.05 W

C 12500 W

D 525 W

Understand It with Pulse | Flag a mistake

39 **Opposite electric charges**

A have no effect

B always cancel

C repel

D attract

Understand It with Pulse | Flag a mistake

40 **Of alpha, beta, and gamma radiation, the most penetrating is**

A alpha

B beta

C gamma

D none

Understand It with Pulse | Flag a mistake

41 **The property that measures an object resistance to a change in its motion is its**

A weight

B volume

C mass

D density

Understand It with Pulse | Flag a mistake

42 **In an inelastic collision, the total kinetic energy after the collision compared with before is**

A zero

B larger

C the same

D smaller

Understand It with Pulse | Flag a mistake

43 A wave has frequency 20 Hz. Its period is

- **A** 20 s
- **B** 0.05 s
- **C** 400 s
- **D** 0.5 s

Understand It with Pulse | Flag a mistake

44 A photon of energy 6.0 eV hits a metal with work function 2.0 eV. The maximum kinetic energy of an emitted electron, in electron volts, is _____

ANSWER _____

Understand It with Pulse | Flag a mistake

45 **Forces of 40 N east and 15 N west act on an object. The net force is**

- **A** 25 N east
- **B** 55 N east
- **C** 55 N west
- **D** 25 N west

Understand It with Pulse | Flag a mistake

46 **A 4 kg object moves at 7 m/s. Its kinetic energy, in joules, is ____**

ANSWER _____

Understand It with Pulse | Flag a mistake

47 **A device of power 120 W runs for 30 s. The energy it uses, in joules, is ____**

ANSWER _____

Understand It with Pulse | Flag a mistake

48 **When light enters a denser material at an angle, it bends**

- A away from the normal
- B toward the normal
- C not at all
- D back on itself

Understand It with Pulse | Flag a mistake

49 **An object moves in a circle at speed 12 m/s with radius 24 m. Its centripetal acceleration is**

- A 288 m/s²
- B 0.5 m/s²
- C 2 m/s²
- D 6 m/s²

Understand It with Pulse | Flag a mistake

50 **A 3 kg object moving at 8 m/s collides and sticks to a stationary 9 kg object. Their common speed is**

A 8 m/s

B 24 m/s

C 2 m/s

D 11 m/s

Understand It with Pulse | Flag a mistake

ANSWER KEY

1. A
2. B
3. A
4. B
5. 50
6. A
7. D
8. C
9. C
10. A
11. C
12. D
13. D
14. B
15. B
16. D
17. C
18. 200
19. D
20. B
21. D
22. B
23. B
24. A
25. 10
26. B
27. A
28. 4
29. D
30. 60
31. B
32. B
33. C
34. B
35. C
36. D
37. 15
38. A
39. D
40. C
41. C
42. D
43. B
44. 4
45. A
46. 98
47. 3600
48. B
49. D
50. C

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