ONTARIO PHYSICS, GRADE 11, UNIVERSITY PREPARATION (SPH3U) · 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 **Velocity differs from speed because velocity includes**

- A only magnitude
- B time only
- C distance only
- D direction as well as magnitude

Understand It with Pulse | Flag a mistake

2 **The SI unit of force is the**

- A joule
- B newton
- C watt
- D kilogram

Understand It with Pulse | Flag a mistake

3 **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

4 **In a transverse wave, particles vibrate**

A parallel to wave travel

B perpendicular to wave travel

C in circles only

D not at all

Understand It with Pulse | Flag a mistake

5 **A car travels 90 metres in 15 seconds at constant speed. What is its speed in metres per second?**

ANSWER _____

Understand It with Pulse | Flag a mistake

6 **A net force acts on a 20 kilogram object, giving it acceleration 3 metres per second squared. What is the net force in newtons?**

ANSWER _____

Understand It with Pulse | Flag a mistake

7 **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

8 **The amplitude of a wave is**

A distance between two crests

B maximum displacement from the rest position

C number of waves per second

D speed of the wave

Understand It with Pulse | Flag a mistake

9 **An object moves at 20 metres per second for 5 seconds. How far does it travel in metres?**

ANSWER _____

Understand It with Pulse | Flag a mistake

10 **A net force of 20 newtons acts on a 5 kilogram object. What is its acceleration in metres per second squared?**

ANSWER _____

Understand It with Pulse | Flag a mistake

11 **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

12 **The period of a wave is**

A time for one complete wave to pass a point

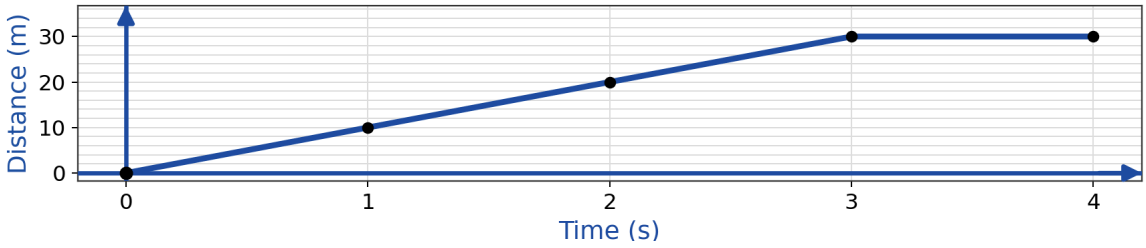
B number of waves per second

C wavelength

D amplitude

Understand It with Pulse | Flag a mistake

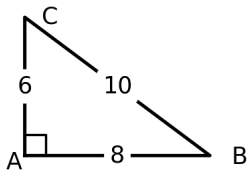
13 **The graph shows distance against time for a moving object. What is its speed in metres per second during the first 3 seconds?**



ANSWER

Understand It with Pulse | Flag a mistake

14 **The diagram shows a right triangle representing a force and its components, with sides labelled 8, 6, and 10. Which side is the hypotenuse?**



A 8

B 6

C 10

D None of them

Understand It with Pulse | Flag a mistake

15 **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

16 **A wave has frequency 4 hertz. What is its period in seconds?**

ANSWER _____

Understand It with Pulse | Flag a mistake

17 **An object accelerates from 10 metres per second to 30 metres per second in 4 seconds. What is its acceleration in metres per second squared?**

ANSWER _____

Understand It with Pulse | Flag a mistake

18 **What is the weight in newtons of a 5 kilogram object on Earth, using 10 newtons per kilogram for gravity?**

ANSWER _____

Understand It with Pulse | Flag a mistake

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

A watt

B joule

C newton

D metre

Understand It with Pulse | Flag a mistake

20 **A wave travels at 300 metres per second with wavelength 15 metres. What is its frequency in hertz?**

ANSWER _____

Understand It with Pulse | Flag a mistake

21 **Acceleration is**

A rate of change of velocity

B change in speed only

C distance divided by time

D speed in a straight line

Understand It with Pulse | Flag a mistake

22 **Weight differs from mass because weight is**

A the same everywhere

B measured in kilograms

C independent of gravity

D a force due to gravity, which varies with location

Understand It with Pulse | Flag a mistake

23 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

24 A wave has frequency 10 hertz and wavelength 20 metres. What is its speed in metres per second?

ANSWER _____

Understand It with Pulse | Flag a mistake

25 The slope of a velocity-time relationship gives

- A acceleration
- B displacement
- C speed
- D distance

Understand It with Pulse | Flag a mistake

26 **Friction acts**

A in the direction of motion

B upward always

C only on stationary objects

D opposite to the direction of motion or attempted motion

Understand It with Pulse | Flag a mistake

27 **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

28 **A wave has frequency 4 hertz and wavelength 25 metres. What is its speed in metres per second?**

ANSWER _____

Understand It with Pulse | Flag a mistake

29 **An object accelerates at 2 metres per second squared from 0 metres per second to 20 metres per second. How long in seconds does this take?**

ANSWER

Understand It with Pulse | Flag a mistake

30 **Two forces of 30 newtons east and 20 newtons east act on an object. The net force is**

A 10 newtons east

B 10 newtons west

C 50 newtons east

D 50 newtons west

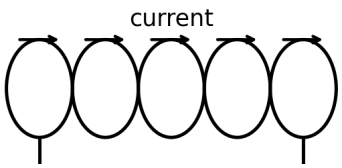
Understand It with Pulse | Flag a mistake

31 **A force of 50 newtons pushes an object 4 metres in the direction of the force. How much work in joules is done?**

ANSWER

Understand It with Pulse | Flag a mistake

32 **The diagram shows a solenoid with current flowing through the coils. At the top of the coil, the current direction is**



A to the left

B into the page

C out of the page

D to the right

Understand It with Pulse | Flag a mistake

33 **An object dropped from rest falls for 2 seconds, ignoring air resistance and using 10 metres per second squared for gravity. How fast is it moving in metres per second?**

ANSWER _____

Understand It with Pulse | Flag a mistake

34 **Air resistance on a falling object increases as speed increases until it equals weight. Then the object falls at**

A terminal velocity, at constant speed

B increasing speed

C zero speed

D decreasing speed

Understand It with Pulse | Flag a mistake

35 **Thermal energy transfer by convection occurs mainly in**

A solids

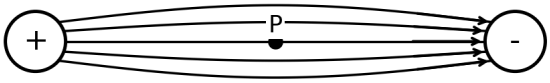
B a vacuum

C metals only

D fluids, by bulk movement of warm material

Understand It with Pulse | Flag a mistake

36 **The diagram shows field lines from a positive charge on the left to a negative charge on the right, with point P in the middle. The electric field direction at P is**



A to the left

B to the right

C up

D down

Understand It with Pulse | Flag a mistake

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

- A only magnitude
- B time only
- C direction as well as magnitude
- D speed only

Understand It with Pulse | Flag a mistake

38 **An object is pulled with 9 newtons east and pushed with 12 newtons west. What is the size of the net force in newtons?**

ANSWER _____

Understand It with Pulse | Flag a mistake

39 **What is the kinetic energy in joules of a 4 kilogram object moving at 5 metres per second?**

ANSWER _____

Understand It with Pulse | Flag a mistake

40 **In the electromagnetic spectrum, visible light has a longer wavelength than**

A ultraviolet light

B radio waves

C infrared light

D microwaves

Understand It with Pulse | Flag a mistake

41 **If an object moves 30 metres east and then 40 metres west, its displacement is**

A 10 metres west

B 70 metres east

C 70 metres west

D 10 metres east

Understand It with Pulse | Flag a mistake

42 **A larger mass has**

A less inertia

B no inertia

C inertia only when moving

D more inertia

Understand It with Pulse | Flag a mistake

43 **Work is done when**

A a force acts but nothing moves

B a force causes displacement in the direction of the force

C an object stays at rest

D energy is stored only

Understand It with Pulse | Flag a mistake

44 **A voltage of 12 volts is applied across a resistor of 4 ohms. What is the current in amperes?**

ANSWER _____

Understand It with Pulse | Flag a mistake

45 **A car slowing down has acceleration in the**

A same direction as its velocity

B perpendicular direction only

C upward direction only

D opposite direction to its velocity

Understand It with Pulse | Flag a mistake

46 **Kinetic friction is friction between surfaces that are**

- A at rest
- B separated by air
- C sliding past each other
- D not in contact

Understand It with Pulse | Flag a mistake

47 **What is the gravitational potential energy in joules of a 4 kilogram object at height 20 metres, using 10 newtons per kilogram for gravity?**

ANSWER _____

Understand It with Pulse | Flag a mistake

48 **A voltage of 24 volts is applied across a resistor of 8 ohms. What is the current in amperes?**

ANSWER _____

Understand It with Pulse | Flag a mistake

49 **In a position-time relationship, a steeper slope represents**

A slower motion

B no motion

C faster motion

D acceleration only

Understand It with Pulse | Flag a mistake

50 **A spring scale measures**

A mass only

B force, including weight

C volume

D density

Understand It with Pulse | Flag a mistake

ANSWER KEY

1.	D	**18.**	50	**35.**	D
2.	B	**19.**	B	**36.**	B
3.	80	**20.**	20	**37.**	C
4.	B	**21.**	A	**38.**	3
5.	6	**22.**	D	**39.**	50
6.	60	**23.**	200	**40.**	A
7.	C	**24.**	200	**41.**	A
8.	B	**25.**	A	**42.**	D
9.	100	**26.**	D	**43.**	B
10.	4	**27.**	75	**44.**	3
11.	D	**28.**	100	**45.**	D
12.	A	**29.**	10	**46.**	C
13.	10	**30.**	C	**47.**	800
14.	C	**31.**	200	**48.**	3
15.	B	**32.**	D	**49.**	C
16.	0.25	**33.**	20	**50.**	B
17.	5	**34.**	A		

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