NEWFOUNDLAND AND LABRADOR PHYSICS 3204 · 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 **A vector quantity differs from a scalar quantity because a vector has both magnitude and**

- A mass
- B direction
- C temperature
- D energy

Understand It with Pulse | Flag a mistake

2 **Uniform circular motion has constant speed but changing velocity because the direction of motion**

A stays the same

B changes continuously

C reverses each second

D becomes zero

Understand It with Pulse | Flag a mistake

3 **Electric field strength at a point is defined as electric force per unit**

A charge

B mass

C distance

D time

Understand It with Pulse | Flag a mistake

4 **In a closed system with no external forces, total momentum is**

- A zero
- B increasing
- C conserved
- D decreasing

Understand It with Pulse | Flag a mistake

5 **Period is the time for one complete wave cycle and equals 1 divided by**

- A wavelength
- B amplitude
- C frequency
- D speed

Understand It with Pulse | Flag a mistake

6 **Displacement is best described as change in**

- A speed
- B time
- C mass
- D position

Understand It with Pulse | Flag a mistake

7 **For a satellite in circular orbit, the centripetal force is provided by**

- A friction
- B normal force
- C air resistance
- D gravity

Understand It with Pulse | Flag a mistake

8 **Coulomb law states that electric force is proportional to the product of charges and inversely proportional to the square of the**

A mass

B time

C charge sum

D distance

Understand It with Pulse | Flag a mistake

9 **Kinetic energy depends on mass and the square of**

A time

B force

C speed

D distance

Understand It with Pulse | Flag a mistake

10 **Sound is an example of a longitudinal wave that needs a**

A vacuum

B mirror

C medium

D lens

Understand It with Pulse | Flag a mistake

11 **Two vectors of equal magnitude in opposite directions sum to**

A zero

B double the magnitude

C half the magnitude

D a scalar

Understand It with Pulse | Flag a mistake

12 **Kepler first law states that planetary orbits are**

A ellipses with the Sun at one focus

B circles with the Sun at the centre

C parabolas

D straight lines

Understand It with Pulse | Flag a mistake

13 **Current is defined as charge per unit**

A distance

B mass

C voltage

D time

Understand It with Pulse | Flag a mistake

14 **When friction acts, mechanical energy is transformed mainly into**

A kinetic energy

B potential energy

C thermal energy

D chemical energy

Understand It with Pulse | Flag a mistake

15 **Refraction of a wave is the bending of a wave when it changes**

A frequency in a vacuum

B amplitude only

C speed in a new medium

D direction in air only

Understand It with Pulse | Flag a mistake

16 **The resultant of two perpendicular vectors is the vector sum, found by placing vectors**

A tail to tail only

B in parallel only

C at right angles only

D head to tail

Understand It with Pulse | Flag a mistake

17 **A planet moves fastest in its orbit when it is closest to the Sun, at**

A aphelion

B equinox

C solstice

D perihelion

Understand It with Pulse | Flag a mistake

18 **The strength of an electromagnet can be increased by increasing current or the number of**

A wires only

B magnets only

C batteries in parallel

D turns

Understand It with Pulse | Flag a mistake

19 **Conservation of energy states that energy cannot be created or destroyed, only**

A lost as heat only

B stored as mass

C transferred or transformed

D measured in joules only

Understand It with Pulse | Flag a mistake

20 **The Doppler effect is the change in observed frequency when a wave source moves relative to an**

- **A** medium
- **B** mirror
- **C** observer
- **D** lens

Understand It with Pulse | Flag a mistake

21 **A vector of magnitude 10 units has a component of 6 units in one direction. The perpendicular component in units is**

ANSWER _____

Understand It with Pulse | Flag a mistake

22 **A wheel turns once every 2 seconds. Its frequency in hertz is**

ANSWER _____

Understand It with Pulse | Flag a mistake

23 **A voltage of 20 volts drives a current of 2 amperes. The power in watts is**

ANSWER _____

Understand It with Pulse | Flag a mistake

24 **A force of 20 newtons moves an object 5 metres. The work in joules is**

ANSWER _____

Understand It with Pulse | Flag a mistake

25 **A wave has period 0.25 seconds. Its frequency in hertz is**

ANSWER _____

Understand It with Pulse | Flag a mistake

26 **A projectile is launched with horizontal velocity 20 metres per second. After 3 seconds with no air resistance, its horizontal velocity in metres per second is**

ANSWER _____

Understand It with Pulse | Flag a mistake

27 **A planet orbital radius increases by a factor of 4. Its orbital period increases by a factor of**

ANSWER _____

Understand It with Pulse | Flag a mistake

28 **Two resistors of 4 ohms and 6 ohms are in series. The total resistance in ohms is**

ANSWER _____

Understand It with Pulse | Flag a mistake

29 **Two masses of 2 kilograms each move toward each other at 3 metres per second and stick together. The final speed in metres per second is**

ANSWER _____

Understand It with Pulse | Flag a mistake

30 **A string vibrates with fundamental frequency 120 hertz. Its third harmonic frequency in hertz is**

ANSWER _____

Understand It with Pulse | Flag a mistake

31 **A boat crossing a river has a velocity relative to the shore that is the vector sum of its velocity relative to the water and the velocity of the**

- **A** water relative to the shore
- **B** boat relative to the air
- **C** shore relative to the boat
- **D** river relative to the boat

Understand It with Pulse | Flag a mistake

32 **Frequency equals 1 divided by what?**

- **A** radius
- **B** period
- **C** speed
- **D** mass

Understand It with Pulse | Flag a mistake

33 **Charging by induction uses a nearby charged object without**

A a field

B direct contact

C an insulator

D a conductor

Understand It with Pulse | Flag a mistake

34 **A safety airbag reduces injury mainly by increasing the time over which momentum changes, thus reducing the average**

A mass

B force

C velocity

D energy

Understand It with Pulse | Flag a mistake

35 **A standing wave forms when two waves of the same frequency travel in opposite directions and**

A refract

B interfere

C diffract

D reflect only

Understand It with Pulse | Flag a mistake

36 **A vector can be resolved into components that are at right angles to each other, usually called**

A rectangular components

B scalar components

C parallel components

D resultant components

Understand It with Pulse | Flag a mistake

37 **Tides on Earth are mainly caused by the gravitational pull of the**

A Sun only

B Moon

C planets

D Earth core

Understand It with Pulse | Flag a mistake

38 **In a parallel circuit, the voltage across each branch is the**

A different

B same

C zero

D maximum

Understand It with Pulse | Flag a mistake

39 **Efficiency as a percentage is useful output energy divided by input energy times**

A 10

B 100

C 1000

D 1

Understand It with Pulse | Flag a mistake

40 **Ultrasound has a frequency above the range of human**

A sight

B hearing

C touch

D speech

Understand It with Pulse | Flag a mistake

41 **A displacement has components 8 metres east and 15 metres north. Its magnitude in metres is**

ANSWER _____

Understand It with Pulse | Flag a mistake

42 **A mass moves at 10 metres per second in a circle of radius 5 metres. Its centripetal acceleration in metres per second squared is**

ANSWER _____

Understand It with Pulse | Flag a mistake

43 **A charge of 4 coulombs experiences a force of 20 newtons. The electric field strength in newtons per coulomb is**

ANSWER _____

Understand It with Pulse | Flag a mistake

44 **A mass of 5 kilograms moves at 6 metres per second. Its momentum in kilogram metres per second is**

ANSWER _____

Understand It with Pulse | Flag a mistake

45 **A wave has frequency 8 hertz and wavelength 5 metres. Its speed in metres per second is**

ANSWER

Understand It with Pulse | Flag a mistake

46 **A projectile horizontal velocity is 15 metres per second. After 4 seconds, its horizontal velocity in metres per second is**

ANSWER

Understand It with Pulse | Flag a mistake

47 **Gravitational force is 200 newtons. If distance doubles, the new force in newtons is**

ANSWER

Understand It with Pulse | Flag a mistake

48 **Two resistors of 10 ohms and 10 ohms are in series. The total resistance in ohms is**

ANSWER

Understand It with Pulse | Flag a mistake

49 **Work of 900 joules is done in 30 seconds. The power in watts is**

ANSWER _____

Understand It with Pulse | Flag a mistake

50 **A wave travels 900 metres in 3 seconds. Its speed in metres per second is**

ANSWER _____

Understand It with Pulse | Flag a mistake

ANSWER KEY

1.	B	**18.**	D	**35.**	B
2.	B	**19.**	C	**36.**	A
3.	A	**20.**	C	**37.**	B
4.	C	**21.**	8	**38.**	B
5.	C	**22.**	0.5	**39.**	B
6.	D	**23.**	40	**40.**	B
7.	D	**24.**	100	**41.**	17
8.	D	**25.**	4	**42.**	20
9.	C	**26.**	20	**43.**	5
10.	C	**27.**	8	**44.**	30
11.	A	**28.**	10	**45.**	40
12.	A	**29.**	0	**46.**	15
13.	D	**30.**	360	**47.**	50
14.	C	**31.**	A	**48.**	20
15.	C	**32.**	B	**49.**	30
16.	D	**33.**	B	**50.**	300
17.	D	**34.**	B		

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