Applied Physics

Subject Code: BE03 **Date: 2025-03-08**

Subject Name: Applied Physics

Time Duration: - **Total Marks: 100**

Instructions:

1. Stable Internet Required: Ensure a good connection.
2. Use Allowed Devices: Only a laptop/PC; no mobile phones or smartwatches.
3. No Switching Tabs: Changing windows may lead to disqualification.
4. Answer all questions within the given time limit. No extra time will be provided.
5. Submit the exam before the deadline, as responses will not be accepted afterward.

A person travels to the west and then 3m to the north find displacement.

Marks: 2

- ○ 7m
- ○ 5m
- ○ 1m
- ○ 3.5m

Newton's First Law of motion gives definition of ____

Marks: 2

- ○ mass
- ○ velocity
- ○ force
- ○ time

Momentum of an object is zero when object is

Marks: 2

- ○ having mass
- ○ in rest
- ○ very large mass
- ○ having constant acceleration

Direction of friction force is in ___ direction of motion of body

Marks: 2

- same
- opposite
- perpendicular
- none

Velocity of an object changes from 10m/s to 50m/s in 2 second. What will be acceleration

Marks: 2

- $20m/s^2$
- 20m/s
- $30m/s^2$
- 40m/s

If applied voltage is 230V and current passing from conductor is 0.8A. Power is ___ Watt

Marks: 2

- 287.5
- 184
- 223.8
- 229.2

External force acting on a body is zero when acceleration is ___

Marks: 2

- changes
- zero
- remain constant
- none

CGS unit of Impulse of force is

Marks: 2

- N.s
- dyne.s
- a and b
- joule

kg.m/s is SI unit of

Marks: 2

- Impulse of force
- Linear momentum
- a and b
- N

Linear momentum is ___

Marks: 2

Newton's First Law is Law of

Marks: 2

- Force
- Inertia
- a and b
- None

Which of the following factors does kinetic energy depends on ?

Marks: 2

- mass only
- velocity only
- both a and b
- none

When gravitational potential energy converted into kinetic energy the velocity will be given by

Marks: 2

- $v = \sqrt{2gh}$
- $v^2 = u^2 + 2ah$
- both a and b
- none

What is the SI unit of kinetic Energy ?

Marks: 2

- Newton (N)
- Joule (J)
- Watt (W)
- Pascal (Pa)

If v = n λ then n = ____

Marks: 2

- Amplitude
- Frequency
- Phase
- Periodic time

Capacity to collect light by optical fibre is called

Marks: 2

- Acceptance Angle
- Numerical Aperture
- Total Internal Reflection
- μ

The phenomena called 'migrage' is possible due to ___ property of light.

Marks: 2

- absorption
- reflection
- total internal reflection
- refraction

Light waves are ____

Marks: 2

- lognitudnal
- transverse
- stationary
- none

The frequency of a wave is 100Hz, So periodic time is

Marks: 2

- ○ 100 sec
- ○ 1 sec
- ○ 10 sec
- ○ 0.01 sec

If frequency of sound is 512 Hz and v = 330m/s then λ = __m

Marks: 2

- ○ 0.6445
- ○ 0.8454
- ○ 0.6045
- ○ 0.9353

Wavelength of the ultrasonic wave is ____ the normal sound waves

Marks: 2

- ○ more
- ○ less
- ○ equal
- ○ none

Sound wave in air is ___

Marks: 2

- ○ lognitudnal
- ○ standing
- ○ transverse
- ○ circular

Ultrasonic waves are ___ for humans.

Marks: 2

- Audible
- inaudible
- visible
- permeable

With decrease in temperature the sound wave speed ____

Marks: 2

- increase
- decrease
- constant
- none

Mechanical waves require ___ medium

Marks: 2

- inelastic
- elastic
- Fluidor solid
- air or vacuum

____ circuit used in magnestrostriction

Marks: 2

- AC Tank
- DC Tank
- LC Tank
- FC Tank

Velocity of light in the medium ____ with increase its refractive index

Marks: 2

- decreases
- increases
- zero
- constant

At what angle of incidence, light ray will not refract

Marks: 2

- 0°
- 90°
- < θc
- 180°

Refractive index represented by

Marks: 2

- Eta
- μ
- both a and b
- none

Absolute μ for glass and diamond are

Marks: 2

- 0.52 and 1.42
- 1.42 and 2.42
- -1.5 and -2.4
- 1.52 and 2.42

Laser is ___ radiation

Marks: 2

- monochromatic
- polychromatic
- white light
- none

Directional property of Laser used in ____

Marks: 2

- surveying
- remote sensing
- Lidar
- All of Above

Source in fibre optic is ___ and receiver is ____

Marks: 2

- Laser and LED
- LED and Laser
- LED and photodiode
- Photodiode and Laser

Avg lifespan of fibre is ___

Marks: 2

- 10 yrs
- 20 yrs
- 50 yrs
- 40 yrs

Skew rays travels in ___

Marks: 2

- SM step
- SM graded
- MM graded
- All

Optical fibre is made of ___ material

Marks: 2

- semi-conductor
- metallic
- conductor
- none

LASER is ____ emission

Marks: 2

- Stimulated
- Spontaneous
- Absorption
- None

Sound wave frequency less than 20Hz is ____

Marks: 2

- Audible
- supersonic
- infrasonic
- ultrasonic

Standing wave is also ___

Marks: 2

- Progressive
- Stationary
- Longitudnal
- none

Which one is mechanical wave ?

Marks: 2

- light
- x-ray
- radio
- sound

Luminous will be considered as ___

Marks: 2

- Intensity
- Brightness
- Both
- None

____ color having longest wavelength

Marks: 2

- red
- yellow
- blue
- orange

Out of phase means difference of ____ degree.

Marks: 2

- 0
- 180
- 90
- A and B

Intensity and amplitude of light relation

Marks: 2

- I proportional to A^2
- I inversly proportional to A
- I = A
- None

If two waves having same phase and ampere the resultant wave will be

Marks: 2

- zero
- double
- half
- none

Condition for reverbration is ____

Marks: 2

- occurs in open hill area
- occurs in close room
- a and b both
- none

Mass of object is 15 Kg what work required to lift it upto 1.5m ?

Marks: 2

- ○ 200J
- ○ 210J
- ○ 225J
- ○ 220J

Unit of kinetic energy

Marks: 2

- ○ W
- ○ J
- ○ A
- ○ K

Work is ____ quantity

Marks: 2

- ○ scalar
- ○ vector
- ○ cant say
- ○ none

Unit of power

Marks: 2

- ○ Watt
- ○ J/S
- ○ kW
- ○ All of Above