(OBJECTIVE) PUNIT TIWARI

Vardhman

BASIC & APPLIED SCIENCE

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Physics

RELATIVE MECHANICS:

#① Accelration of a body measured by the observer in two frames S & S' is same then they are

① inertial ② Non-inertial ③ Integral

#2. Equations relating the coordinate of two frame of refrence are called

① Transformation Equation

② Interpolation equations

③ Intrapolation Equation

#3. Michelson-Morley experiment shows that Relative velocity b/w earth and ether is

① caustt ② Zero ③ caustt accelrating

#4. In all inertial frame of refrence speed of light is

① accelerating ② caustt ③ caustt relative to acceleration.

#5. When a particle is moving with a speed v≪c then the contraction in length is given by

① $1/\sqrt{1-v^2/c^2}$ ② $\sqrt{1+\frac{v^2}{c^2}}$

③ $\sqrt{1-\frac{v^2}{c^2}}$ ④ $\frac{1}{\sqrt{1+\frac{v^2}{c^2}}}$

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#6: How much time does a meter stick moving @ 0.10c relative to an observer take to pass the observer?

① 2.39×10^{-8} s. ② 2.93×10^{-8} s.
③ 3.32×10^{-8} s ③ 3.32×10^{-4} s.

Solution: as time = $\frac{\text{Distance}}{\text{speed}}$; while $L = L_0\sqrt{1-\frac{v^2}{c^2}}$

$L_0 = 1$ m $v = 0.10c$

$\therefore L = .992$

$\therefore$ time = $\frac{.992}{.10c} = \frac{.992}{.1 \times 3 \times 10^8} = 3.32 \times 10^{-8}$ s

#7: A particle ~~too~~ moving with the speed of light having rest mass.

① constt ② mo ③ 0 ④ $\sqrt{1-\frac{v^2}{c^2}}$

#8: Rest mass of a proton is

① mo ② unity ③ zero ④ constt.

#9: A clock is moving with speed $v \approx c$ it will appeared to be [redacted] stationary observer

① moving fast ② slowed down
③ no real effect

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#10 Length contraction takes place only along the

① direction of motion
② in perpendicular to direction of motion
③ In both ④ All possible.

OPTICS:

#11: The non uniform distribution of light intensity due to the superposition of light is

① Interference ② Diffraction
③ polerization ④ Total internal reflection

#12 In practis two independent light source can work as coherent source

① Never ② If working at same frequency
③ If working at same wavelength

#13 In michelson interferometer a single light beam is broken in to

① Two parallel rays ② Two perpendicular rays
③ many perpendicular rays
④ No spliting of rays.

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#14: Relation b/w phase diffrence & path diffrence

① path diffrence = $\frac{2\pi}{\lambda}$ × phase diffrence

② phase diffrence = $\frac{2\pi}{\lambda}$ × path diffrence

③ phase diffrence × path diffrence = $\frac{2\pi}{\lambda}$

#15: Bi-prism is a device having combination

① of one prism of small refracting angle

② of Two prism of small refracting angle

③ of Two prism of large refracting angle

④ of one prism of large refracting angle.

#16 In Bi prism experiment- if we use monochromatic light

① All bright fringes are of same color

② All bright fringes are of diffrent color

③ All bright fringes are of dull bright color

#17: Color produced on a thin film of oil is the example of

① Refraction ② polarization

③ Interference ④ Reflection

#18 For destructive interference. path diffrence should be equal to

① Even multiple of $\frac{\lambda}{2}$

② odd multiple of λ

③ Even multiple of λ

④ odd multiple of λ

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#19: To form Newtons Rings we use
① A Plano-Convex lens
② A Plano-Concave lens
③ Convex lens ④ Concave lens

#20: In Newton ring experiment fringes are circular because
① Air film is absent about the point of contact
② Air film is ~~symmetrical~~ asymmetrical about point of contact
③ Air film is symmetrical about point of contact

#21: When a little liquid is introduced between the lens and the plate the Rings are
① contracted ② Dispersed ③ No effect

#22: Grating Equation is
① $(a+b)\sin\theta = \pm n\lambda$ ③ $(a+b)\lambda\sin\theta = n$
② $(a+b)n\lambda = a\sin\theta$ ④ $n\lambda\sin\theta = (a+b)$

#23: Dispersive power of a grating
① $\frac{d\theta}{d\lambda} = \frac{n}{(a+b)\sin\theta}$ ③ $\frac{d\theta}{d\lambda} = \frac{a}{(a+b)\cos\theta}$
② $\frac{d\theta}{d\lambda} = \frac{n}{(a+b)\cos\theta}$ ④ $\frac{d\theta}{d\lambda} = \frac{d}{a\sin\theta n}$

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POLARISATION:

#24: In plane polarised light vibrations takes place only along straight line
(1) perpendicular to direction of propagation of light
(2) parallel to direction of propagation of light.
(3) Doesn't depend upon the direction of propagation

#25: Plane of Vibration contains direction of vibration
(1) Direction of ~~motion~~ motion of particle
(2) ⊥ to the ~~propag~~ propagation of light
(3) direction of propagation of light

#26: Brewster law is
(1) $\mu = \frac{1}{\tan i_p}$ (2) $\mu = \tan i_p \times \tan i_p$
(3) $\mu = \tan i_p$ (4) ~~μ~~ $i_p = \tan \mu$

#27: find the biaxial crystal
(1) Calcite (2) Tourmaline
(3) Topaz (4) quartz

#28: Calcite crystal is
(1) Rhombus (2) Tetrahedron
(3) Rhombohedron (4) ~~Rot~~ Pentahedron.

#29: ~~(1) (2) (3) follows~~
~~Snell's laws~~

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#29: X-ray are not following :
① Newtonian mechanics ② Malus Law
③ Snells law ④ Brewster law.

#30 Nicol prism is made of
① quartz ② Tourmaline
③ Topaz ④ Calcite

#31 Cane sugar is having a specific rotation of
① +69.5° ② +64.5°
③ +66.5° ④ +67.5°

#32 LASER action is due to
① spontaneous emission
② Stimulated ③ Both

#33: optical pumping is done in
① He-Ne Laser ② Diode laser
③ Ruby ④ LED.

#34: Ruby laser is a
① pulse ② continuous
③ spontaneous laser.

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#35. Refractive index of Core in fiber optics is

① greater than cladding ② Same
③ less than cladding ④ Independent