

Quiz: Physics set 24

Q1143: A particle starts from rest with uniform acceleration. The velocity after time t is proportional to:

- A) t
- B) t^2
- C) $1/t$
- D) \sqrt{t}

Q1144: A projectile is projected vertically upward. The time to reach maximum height is:

- A) u/g
- B) $2u/g$
- C) $u^2/2g$
- D) g/u

Q1145: If momentum of a body is doubled, its kinetic energy becomes:

- A) Four times
- B) Two times
- C) Half
- D) Same

Q1146: A body moving in a circle at constant speed has acceleration directed towards:

- A) Center
- B) Tangent
- C) Outward
- D) Random

Q1147: The work done by gravitational force on a body moving along a closed path is:

- A) Zero
- B) Positive
- C) Negative
- D) Maximum

Q1148: The escape velocity of a satellite is $\sqrt{2}$ times its:

- A) Orbital velocity
- B) Linear velocity
- C) Angular velocity
- D) Terminal velocity

Q1149: The terminal velocity of a body in viscous medium depends on:

- A) Radius of body
- B) Shape only
- C) Time
- D) Path

Q1150: The SI unit of stress is:

- A) N/m²
- B) N/m
- C) J
- D) kg/m²

Q1151: For an ideal gas in adiabatic expansion, the temperature:

- A) Decreases
- B) Increases
- C) Remains constant
- D) Becomes zero

Q1152: The total mechanical energy of a particle in SHM is proportional to:

- A) A²
- B) A
- C) omega
- D) T

Q1153: The speed of sound in air is maximum when air is:

- A) Hot and humid
- B) Cold and dry
- C) Hot and dry
- D) Cold and humid

Q1154: The electric field at the center of a uniformly charged spherical shell is:

- A) Zero
- B) Maximum
- C) Finite
- D) Infinite

Q1155: The SI unit of electric dipole moment is:

- A) C·m
- B) N·m
- C) J/C
- D) V·m

Q1156: If the distance between capacitor plates is reduced to half, capacitance becomes:

- A) Double
- B) Half
- C) Four times
- D) Unchanged

Q1157: The drift velocity of electrons is proportional to:

- A) Electric field
- B) Current only
- C) Resistance
- D) Length

Q1158: The magnetic field inside a long solenoid is:

- A) Uniform
- B) Zero
- C) Non-uniform
- D) Infinite

Q1159: The SI unit of magnetic flux is:

- A) Weber
- B) Tesla
- C) Henry
- D) Ampere

Q1160: Induced emf is produced due to change in:

- A) Magnetic flux
- B) Electric field
- C) Resistance
- D) Current

Q1161: In a purely capacitive AC circuit, the current:

- A) Leads voltage by 90 deg
- B) Lags voltage by 90 deg
- C) Is in phase
- D) Is zero

Q1162: The focal length of a convex lens is:

- A) Positive
- B) Negative
- C) Zero
- D) Infinite

Q1163: A concave mirror forms a virtual image when the object is placed:

- A) Between pole and focus
- B) Beyond focus
- C) At center of curvature
- D) At infinity

Q1164: The fringe width in Young's double slit experiment depends on:

- A) $\lambda D/d$
- B) $d/\lambda D$
- C) λ/d
- D) D/λ

Q1165: The photoelectric effect confirms the quantum nature of:

- A) Light
- B) Electron
- C) Atom
- D) Nucleus

Q1166: The de Broglie wavelength of a particle is inversely proportional to its:

- A) Momentum
- B) Energy
- C) Velocity
- D) Mass

Q1167: The binding energy per nucleon is maximum for:

- A) Iron
- B) Helium
- C) Uranium
- D) Hydrogen

Q1168: The SI unit of activity of a radioactive substance is:

- A) Becquerel
- B) Gray
- C) Sievert
- D) Curie

Q1169: The conductivity of a semiconductor increases with:

- A) Increase in temperature
- B) Decrease in temperature
- C) Increase in pressure
- D) Decrease in length

Q1170: In an n-type semiconductor, the majority carriers are:

- A) Electrons
- B) Holes
- C) Protons
- D) Ions

Q1171: The SI unit of electric potential difference is:

- A) Volt
- B) Joule
- C) Coulomb
- D) Ampere

Q1172: The escape velocity from Earth depends on:

- A) Mass and radius of Earth
- B) Mass of body
- C) Atmosphere
- D) Temperature

Q1173: The SI unit of angular momentum is:

- A) $\text{kg}\cdot\text{m}^2/\text{s}$
- B) $\text{kg}\cdot\text{m}/\text{s}$
- C) $\text{N}\cdot\text{m}$
- D) J

Q1174: The coefficient of viscosity of liquids decreases with:

- A) Increase in temperature
- B) Increase in pressure
- C) Increase in density
- D) Decrease in volume

Q1175: The pitch of a sound depends on:

- A) Frequency
- B) Amplitude
- C) Intensity
- D) Speed

Q1176: The electric potential inside a conductor is:

- A) Constant
- B) Zero
- C) Maximum at center
- D) Minimum at surface

Q1177: The magnetic field inside a long solenoid is:

- A) Uniform
- B) Zero
- C) Non-uniform
- D) Infinite

Q1178: The power factor of an AC circuit is:

- A) cosphi
- B) sinphi
- C) tanphi
- D) 1/phi

Q1179: A convex mirror always forms an image which is:

- A) Virtual and erect
- B) Real and inverted
- C) Real and erect
- D) Virtual and inverted

Q1180: The refractive index of a medium decreases when:

- A) Wavelength increases
- B) Frequency increases
- C) Density increases
- D) Optical density increases

Q1181: The work function of a metal is the minimum energy required to:

- A) Remove an electron
- B) Excite an electron
- C) Ionize a nucleus
- D) Produce radiation

Q1182: The energy of a photon is given by:

- A) $h\nu$
- B) hc
- C) h/ν
- D) h/λ^2

Q1183: The decay constant of a radioactive element depends on:

- A) Nature of nucleus
- B) Temperature
- C) Pressure
- D) Chemical state

Q1184: The Fermi level in an intrinsic semiconductor lies:

- A) At mid-gap
- B) Near conduction band
- C) Near valence band
- D) Outside bands

Q1185: The logic gate that gives output 1 only when inputs are different is:

- A) XOR
- B) AND
- C) OR
- D) NOR

Q1186: The SI unit of inductance is:

- A) Henry
- B) Tesla
- C) Weber
- D) Ampere

Q1187: The phenomenon responsible for mirage is:

- A) Total internal reflection
- B) Refraction only
- C) Diffraction
- D) Scattering

Q1188: The SI unit of current density is:

- A) A/m^2
- B) A/m
- C) C/m^2
- D) V/m

Q1189: Magnetic susceptibility of a diamagnetic substance is:

- A) Negative
- B) Positive
- C) Zero
- D) Infinite

Q1190: Faraday's law of electromagnetic induction states that induced emf is proportional to:

- A) Rate of change of magnetic flux
- B) Magnetic field
- C) Area of loop
- D) Resistance

Q1191: The SI unit of magnetic moment is:

- A) A·m²
- B) T·m
- C) Wb
- D) N·m

Q1192: The center of mass of an isolated system moves with constant velocity due to conservation of:

- A) Linear momentum
- B) Energy
- C) Angular momentum
- D) Force