Competitive Exams Physics Objective questions Part 19

Q-1. The angle for t maximum height and horizontal range are same for a projectile is

(a) 84^o

(b) 76^o

(c) 48^o

(d) 32^o

Q-2. A particle is moving with a constant speed along a straight line path. A force is not required to

(a) Increase its speed

(b) Decrease the momentum

(c) Change the direction

(d) Keep it moving with uniform velocity

Q-3 An aero plane moving horizontally with a speed of 720 km/h drops a food pocket, while flying at a height of 3969 m. the time taken by a food pocket to reach the ground and horizontal range is $\left(Take\ g = 9.8\ m/\sec^2 \right)$

(a) 3 sec and 2000 m

(b) 5 sec and 500 m

(c) 8 sec and 1500 m

(d) 9 sec and 1800 m

Q-4. Two particles of equal mass are revolving in circular paths of radii $r_1\ and\ r_2$ respectively with the same angular velocity. The ration of their centripetal forced will be

(a) $\frac{r1}{r2}$

(b) $\frac{r_2}{r_1}$

(c) $\sqrt{r_2}/r_1$

(d) $\left(\frac{r_2}{r_1}\right)^2$

Q-5. A particle is constrained to move on a straight line path. It returns to the starting point after 10 sec. the total distance covered by the particle during this is 30 m. Which of the following statement about the motion of the particle is false?

(a) Displacement of the particle is zero

(b) Average speed of the particle is 3 m/s

(c) Displacement of the particle is 30 m

(d) both (a) and (b)

Q-6. The change of momentum in each ball of mass 60 g, moving in opposite directions with speed 4 m/s collide and rebound with the same speed, is

(a) $0.98\ kg - m/s$

(b) $0.73\ kg - m/s$

(c) $0.48\ kg - m/s$

(d) $0.22\ kg - m/s$

Q-7. If a cyclist moving with a speed of 4.9 m/s on a level road can take a sharp circular turn of radius 4 m, then coefficient of friction between the cycle tyros and road is

(a) 0.41

(b) 0.51

(c) 0.61

(d) 0.71

Q-8. Ratio of rotational and translator kinetic energies of a sphere is

(a) $\frac{2}{9}$

(b) $\frac{2}{7}$

(c) $\frac{2}{5}$

(d) $\frac{2}{3}$

Q-9. The distance of a geostationary satellite form the centre of the earth (Radius, R=6400 km) is nearest to

(a) 5 R

(b) 7 R

(c) 10 R

(d) 18 R

Q-10. Which of the following law is related with pressure head, velocity head, and gravity head?

(a) Stoker's law

(b) Pascal's principle

(c) Bernoulli's principle

(d) Archimedes principle

Q-11. Weight of a boby is maximum at

(a) Moon

(b) Poles of earth

(c) Equator of earth

(d) Centre of earth

Q-12. Pick out the wrong pair

(a) Charge-coulomb

(b) Temperature - thermometer

(c) pressure-barometer

(d) Specific gravity – hygrometer

Q-13. A drop of liquid assume spherical shape because of

(a) Density

(b) Viscosity

(c) Gravitation

(d) Surface tension

Q-14. Which law states that – "If the pressure in a liquid is changed at particular point, the change is transmitted to the entire liquid without being diminished in magnitude."

(a) Stoker's law

(b) Pascal's principle

(c) Bernoulli's principle

(d) Archimedes principle

Q-15. Which of the following cannot determine the state of a thermodynamic system?

(a) Pressure and volume

(b) Volume and temperature

(c) Temperature and pressure

(d) Any one of pressure, volume or temperature

Q-16. A Centigrade and a Fahrenheit thermometer are dipped in boiling water. The water temperature is lowered until the Fahrenheit thermometer registers 140^o. The fall in temperature as registered by the Centigrade thermometer will be

(a) 30^o

(b) 40^o

(c) 60^o

(d) 80^o

Q-17. A particle executing S.H.M. has amplitude 0.01 and frequency 60 Hx. The maximum acceleration of the particle is

(a) $144\ \pi^2\ m/s^2$

(b) $120\ \pi^2\ m/s^2$

(c) $80\ \pi^2\ m/s^2$

(d) $60\ \pi^2\ m/s^2$

Q-18. An organ pipe close at one end vibrating in its first overtone and another pipe p_2, open at both ends vibrating in its third overtone are in resonance with a given tuning fork. The ratio of lengths of $p_1\ and\ p_2$ is

(a) 1:2

(b) 1:3

(c) 3:8

(d) 3:4

Q-19. If the length of a closed organ pipe is 1 m and velocity of sound is 330 m/s, then the frequency for the second note is

(a) $4 \times \frac{330}{4} Hz$

(b) $3 \times \frac{330}{4}\ Hz$

(c) $2 \times \frac{330}{4}\ Hz$

(d) $2 \times \frac{330}{4} Hz$

Q-20. A simple pendulum is executing simple harmonic motion with a time period T. If the length of the pendulum is increased by 21%, the increase in the time period of the pendulum of increased length is

(a) 10%

(b) 21%

(c) 30%

(d) 50%

Q-21. A lightly damped oscillator with a frequency (ω) is set in motion by harmonic driving force of frequency (n). When n < ω, then response of the oscillator is controlled by

(a) Spring constant

(b) Inertia of the mass

(c) Oscillator frequency

(d) Damping coefficient

Q-22. Sound travels as

(a) Longitudinal waves

(b) Transverse waves

(c) Electromagnetic waves

(d) None of these

Q-23. Two concentric spheres of radii R and r have similar charges with equal surface densities (σ).What is the electric potential at their common centre?

(a) σ/ε_o

(b) $R\sigma/r\varepsilon_o$

(c) $\sigma/\varepsilon_o(R+r)$

(d) $\sigma/\varepsilon_o(R-r)$

Q-24. A potentiometer consists of a wire of length 4m and resistance 10Ω. It is connected to a cell of e.m.f. 2V. The potential difference per unit length of the wire will be

(a) $0.5\ V/m$

(b) $2\ V/m$

(c) $5\ V/m$

(d $10\ V/m$)

Q-25. Which of the following does not obey Ohm's law?

(a) Copper

(b) Aluminum

(c) Diode-valve

(d) None of these

Q-26 The measurement of voltmeter in the following circuit is

(a) 2.4 v

(b) 3.4 v

(c) 4.0 v

(d) 6.0 v

Q-27. The electric field required to keep q water drop of mass 'm' just to remain suspended, when charged with one electron is

(a) Mg

(b) emg

(c) mg/g

(d) em/g

Q-28. From a point charge. There is a fixed point A. at A. there is an electric field of 500 V/m and potential difference of 3000 V. Distance between point charge and A is

(a) 6m

(b) 12 m

(c) 16 m

(d) 24 m

Q-29.Three bulbs of 40 W, 60 W and 100 W are arranged in series with 220 V. Which bulb has minimum resistance?

(a) 40 W

(b) 60 W

(c) 100 W

(d) Equal in all bulbs

Q-30. A proton is passing from a fixed place with constant velocity. If E and B are electric and magnetic fields respectively, then which of the following statement is true?

(a) $E \neq 0 \, and \, B = 0$

(b) $B \neq 0 \, and \, E = 0$

(c) $E \neq 0 \, and \, B \neq 0$

(d) $E = 0 \, and \, B = 0$

Q-31. If the velocity of radio waves is $3 \times 10^5 \ km/s$, then frequency corresponding to wavelength of 300m is

(a) 10 kHz

(b) 1 MHz

(c) 1 kHz

(d) 10 MHz

Q-32. In the given nuclear reaction, how many α and particles are emittec ${}_{92}X^{235} \rightarrow {}_{82}Y^{207}$?

(a) 3 α particles and 2 β particle

(b) 4 α particles and 3 β particles

(c) 6 α particles and 4 β particles

(d) 7 α particles and 4 β particles

Q-33. Which radiation in sunlight causes heating affect?

(a) Ultraviolet

(b) Infra-red

(c) Visible light

(d) All of these

Q-34. Which of the following phenomenon shows the transverse nature of light?

(a) Diffraction

(b) Polarization

(c) Interference

(d) Photoelectric affect

Q-35. The refractive angles of two prisms made of crown glass are 10^o *and* 20^o respectively. The ratio of their color deviation powers will be

(a) 1:1

(b) 2:1

(c) 3:1

(d) 4:1

Q-36. Betterton is used for accelerating

(a) Protons

(b) Photons

(c) Neutrons

(d) Electrons

Q-37. Which of the following color has the maximum speed in glass?

(a) Red

(b) Black

(c) White

(d) Violet

Q-38 Rutherford's $\alpha-$particle experiment shows that the atoms have

(a) Proton

(b) Nucleus

(c) Neutron

(d) Electrons

Q-39. The energy of the ground electronic state of hydrogen atom is $-13.6\ eV$. The energy of the first excited state will be

(a) $-3.4\ eV$

(b) $-6.8\ eV$

(c) $-27.2\ eV$

(d) $-52.4\ eV$

Q-40. Moderators used in nuclear reactor is

(a) Ice

(b) Boron road

(c) Cadmium road

(d) Heavy water