

Physics- Set2

1. A car travelling with a speed of 60 km/h, can brake to stop within a distance of 20 m. If the car is going twice as fast, i.e., 120 km/h, the stopping distance will be
a) 20 m b) 40 m c) 60 m d) 80 m
2. A ball whose kinetic energy is E , is projected at an angle of 45° to the horizontal. The kinetic energy of the ball at the highest point of flight will be
a) E b) $\frac{E}{\sqrt{2}}$ c) $\frac{E}{2}$ d) zero
3. Two equal forces are acting at a point with an angle of 60° between them. If the resultant force is $20\sqrt{3}$ N, the magnitude of each force is equal to
a) 40 N b) 20 N c) $10\sqrt{3}$ N d) $20\sqrt{3}$ N
4. Zeroth Law of thermodynamics defines
a) internal energy b) enthalpy c) temperature d) pressure
5. A point source emits sound waves with an average output of 80W. The intensity at 3m from source will be
a) 0.808 W/m^2 b) 8.080 W/m^2 c) 0.707 W/m^2 d) 7.707 W/m^2
6. When a dielectric is inserted into the gap of a capacitor, the capacitance always
a) decrease b) remain same c) increase d) goes to zero
7. A bomb of mass 16 kg at rest explodes into two pieces of masses 4 kg and 12 kg. The velocity of the 12 kg mass is 4 ms^{-1} . The kinetic energy of the other mass is
a) 144J b) 288 J c) 192 J d) 96 J
8. If g is the acceleration due to gravity at earth's surface and r is the radius of the earth, the escape velocity for the body to escape out of earth's gravitational field
a) gr b) $\sqrt{2gr}$ c) $\frac{g}{r}$ d) $\frac{r}{g}$
9. According to Newton's law of cooling, the rate of cooling of a body is proportional to $(\Delta\theta)^n$, where $\Delta\theta$ is the difference of the temperature of the body and surrounding, and n is equal to
a) 1 b) 2 c) 3 d) 4
10. The temperature at which the speed of sound in air becomes double of its value at 0°C is
a) 273°C b) 546°C c) 819°C d) 1092°C
11. A tuning fork produces 4 beats/ second, both with 50 and 40 cms of a stretched wire of sonometer. The frequency of the fork is
a) 36 Hz b) 50 Hz c) 90 Hz d) 110 hz
12. Two point charges placed at a distance r in the air experiences a certain force, then the distance at which they will experience the same force in the medium of dielectric constant K is
a) Kr b) r/K c) $r/\sqrt{K}$ d) $r\sqrt{K}$
13. A hollow metallic sphere of radius 5 cm is charged such that the potential on its surface is 10 V. The potential at a distance 2 cm from its centre is
a) zero b) 10 V c) 4 V d) $10/3$ V
14. Four capacitors of equal capacitance have an equivalent capacitance C_1 when connected in series and an equivalent capacitance C_2 when connected in parallel. The ratio $\frac{C_1}{C_2}$ is
a) $\frac{1}{4}$ b) $\frac{1}{16}$ c) $\frac{1}{8}$ d) $\frac{1}{12}$
15. Two thin lenses of focal lengths 20 cm and 25 cm are placed in contact. The effective power of the combination is

- a) 9D b) 2D c) 3D d) 7D
16. An alternating current in a circuit is given by $I = 20 \sin (100\pi t + 0.05\pi)$ A. The r.m.s. value and the frequency of current respectively are
 a) 10A & 100 Hz b) 10A & 50 Hz c) $10\sqrt{2}$ A & 50Hz d) $10\sqrt{2}$ A & 100 Hz
17. At two different places the angles of dip are respectively 30° and 45° . At these two places the ratio of horizontal component of earth's magnetic field is
 a) $\sqrt{3} : \sqrt{2}$ b) $1 : \sqrt{2}$ c) $1 : 2$ d) $1 : \sqrt{3}$
18. A train approaching a railway platform with a speed of 20 ms^{-1} starts blowing the whistle. Speed of sound in air is 340 ms^{-1} . If the frequency of the emitted sound from the whistle is 640 Hz, the frequency of sound to a person standing on the platform will appear to be
 a) 600 Hz b) 640 Hz c) 680 Hz d) 720 Hz
19. Water is flowing through a very narrow tube. The velocity of water below which the flow remains a streamline flow is known as
 a) Relative velocity b) Terminal velocity c) Critical velocity d) Particle velocity
20. What current will flow through the $2\text{k}\Omega$ resistor in the circuit shown in the figure?

