

Physics Ss1 Test.

- 1 Which of the following statements is correct? Silvered walls of a vacuum flask are used to prevent (a) heat loss due to convection (b) vacuum loss (c) heat entry into the inner flask due to convection (d) heat loss due to radiation.
2. A perfect emitter or absorber of heat of radiant energy is ---- (a) white body (b) red body (c) conductor (d) black body.
3. If a pump is capable of lifting 5000kg of water through a vertical height of 60m in 15mins, the power of the pump is --- (a) $2.5 \times 10^5 \text{Js}^{-1}$ (b) $3.3 \times 10^3 \text{Js}^{-1}$ (c) $2.5 \times 10^4 \text{Js}^{-1}$ (d) $3.3 \times 10^2 \text{Js}^{-1}$.
4. When an atom loses or gains a charge, it becomes (a) an ion (b) an electron (c) a neutron (d) a proton.
5. A Satellite revolving around the earth is kept on its orbit by (a) Centrifugal force only (b) Centripetal force only (c) Centripetal and Frictional Forces (d) Centripetal and centrifugal forces.
6. What force has to be exerted on a mass 60Kg to give an acceleration of 10ms^{-2} vertically upwards? ($g = 10\text{ms}^{-2}$).
7. A Solid weighs 10.0N in air, 6.0N when fully immersed in water and 7.0N when fully immersed in a certain liquid X. Calculate the Relative density of the liquid.
8. A cube of side 0.1m hangs freely from a string. What is the Upthrust on the Cube when totally immersed in water? (a) 1000N (b) 700N (c) 110N (d) 10N. (Density of water = 1000kgm^{-3} , $g=10\text{ms}^{-2}$).
9. When a ball rolls on a smooth level ground, the motion of its centre is ----(a) Translational (b) Oscillatory (c) Random (d) Rotational
10. An air-force jet flying with a speed of 335ms^{-1} went past an anti- aircraft gun. How far is the aircraft 5s later when the gun was fired? (a) 838m (b) 3350m (c) 670m (d) 11675m.
11. A train has an initial velocity 44ms^{-1} and an acceleration of 4ms^{-2} . Its velocity after 10secs is – (a) 2ms^{-1} (b) 4ms^{-1} (c) 8ms^{-1} (d) 12ms^{-1} .
12. Steel bars each of length 3m at 28°C are used to construct a rail line. If the linear expansivity of steel is $1.0 \times 10^{-5}\text{K}^{-1}$. What is the safety gap that must be left between successive bars, if the highest temperature expected is 40°C ? (a) $3.6 \times 10^{-4}\text{m}$ (b) $1.2 \times 10^{-3}\text{m}$ (c) $1.8 \times 10^{-4}\text{m}$ (d) $4.2 \times 10^{-3}\text{m}$.
13. Metal rods of length 20m each are laid end to end to form a bridge at 25°C . What gap will be provided between construction rails for bridge to withstand 75°C ? (a) 0.22m (b) 0.25m (c) 0.02m (d) 0.20m. (Linear expansivity of material = $2.0 \times 10^{-5}\text{K}^{-1}$).
14. A man of mass 50Kg ascends a flight of stairs 5m high in 5 seconds. If acceleration due to gravity is 10ms^{-2} . The power expended is -----(a) 100W (b) 200W (c) 400W (d) 500W.2515.

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16. A man whose mass is 80Kg climbs a staircase in 20 secs and expends a power of 120watt, find the height of the staircase ($g = 10\text{ms}^{-2}$). (a) 1.8m (

17. The glass rod rubbed with silk becomes positively charged because (a) some positive charges are transferred from the silk to the glass (b) some electrons are transferred from silk to glass (c) The silk becomes deficient in electrons (d) some electrons have been transferred from glass to silk.

18. A building can be adequately protected from lightning by (a) using asbestos for the roof of the house (b) Planting trees around the house (c) fixing a long copper strip from the ground along the outside wall to a sharp vertical spike (d) fixing a long wooden pole with a sharp spikes to the outside wall.

19. One of these is not ways of producing charges (a) by Contact (b) by friction (c) Electrostatic Induction (d) By dopping. _____

20. An iron rod of length 50m at a temperature of 60°C is heated to 70°C . Calculate the new length of the rod (linear expansivity of iron = $1.2 \times 10^{-5}\text{K}^{-1}$) (a) 51.20m (b) 51.06m (c) 50.06m (d) 50.01m.