

S.3 PHYSICS

MIDTERM ONE EXAMS 2019

TIME: 2HRS

SECTION A

1. Permanent magnets are made from
 - A. Diamagnetic materials
 - B. Ferromagnetic materials
 - C. Paramagnetic materials
 - D. Dielectric materials
2. An object of mass 2kg dropped from the top of a building hits the ground with kinetic energy of 900J. the height of the building is
 - A. 30m
 - B. 45m
 - C. 90m
 - D. 180m
3. When a room is filled with smoke, the smoke tends to concentrate
 - A. Around the walls
 - B. Close to the floor
 - C. Close to the roof
 - D. Midway between the roof and floor
4. Capillary rise in a tube dipped in water is due to
 - A. Surface tension
 - B. High vapour pressure
 - C. Adhesive force being greater than cohesive force
 - D. The atmospheric pressure acting on the surface of the water
5. A force of 50N moves an object through a distance of 200m in 40s. Find the power expended.
 - A. 100W
 - B. 160W
 - C. 200W
 - D. 250W
6. Two forces of 3N and 4N act at a point at right angles to each other. Find the magnitude of the resultant force.
 - A. 1N
 - B. 5N
 - C. 7N
 - D. 12N
7. When water spreads on a glass plate, the force between its molecules and glass molecules are due to
 - A. Surface tension

- B. Cohesion
 - C. Adhesion
 - D. Viscosity
8. A stone of mass 2.5kg is thrown with an average force of 5.0N. find the average acceleration in ms^{-2}
 - A. 5.0×10^{-4}
 - B. 2.0×10^{-3}
 - C. 1.25×10^2
 - D. 2.0×10^3
 9. Calculate the increase in pressure which a diver experiences when he descends in sea water of density $1.2 \times 10^3 \text{kgm}^{-3}$
 - A. $3.0 \times 10^2 \text{Nm}^{-2}$
 - B. $1.2 \times 10^4 \text{Nm}^{-2}$
 - C. $3.6 \times 10^4 \text{Nm}^{-2}$
 - D. $3.6 \times 10^5 \text{Nm}^{-2}$
 10. Three of the fundamental physics quantities are
 - A. Density, mass and time
 - B. Length, mass and time
 - C. Length, time and weight
 - D. Length, mass and time
 11. A stick with one end immersed in water appears bent at the water surface because of
 - A. Diffraction
 - B. Reflection
 - C. Refraction
 - D. Inference
 12. A sea breeze occurs
 - A. When cool air blows towards the sea
 - B. When warm air blows towards the land
 - C. During the night
 - D. When cool air blows towards the sea.
 13. A ball of 1kg bounces off the ground to a height of 2m after falling from a height of 5m, find the energy lost.
 - A. 5J
 - B. 20J
 - C. 30J
 - D. 50J
 14. Which of the following is true about pressure in liquids? It
 - A. Increases with the surface area of the liquid
 - B. Is directly proportional to the depth
 - C. Depends on the shape of the container
 - D. Is the same at equal depths in all liquids?

15. When smoke is introduced in a smoke cell and observed under a microscope, it is observed as particles moving at random. This is mainly because the particles.
- Are hot
 - Collide with one another
 - Collide with air molecules
 - Collide with the walls of the smoke cell.
16. Calculate the effort when a load of 72N is raised using a block system of five pulleys and efficiency 80.
- 11.52N
 - 18N
 - 57.6N
 - 288N
17. A water pump raises 2000kg of water through a vertical height of 72m in one hour. Calculate the power of the pump.
- 40000W
 - 4000W
 - 400W
 - 40W
18. In which of the following situations is minimum frictional force required?
- Sliding down a slope
 - Walking along a road
 - Learning a ladder against a wall
 - Designing brake blocks for a bicycle
19. An engine exerts a force of 2000N at a speed of 15ms^{-1} . Find the power developed by the engine in kW.
- 3000
 - 30000
 - 300
 - 30
20. What is 730mmHg in Nm^{-2} ?
- $\frac{13600 \times 1000 \times 10}{730}$
 - $\frac{13600 \times 730 \times 10}{1000}$
 - $\frac{13600 \times 730}{1000 \times 10}$
 - $\frac{13600 \times 730}{1000 \times 730}$

SECTION B

21. (a) State the law of floatation.
 (b) A cube of edges 0.1m floats in a liquid of density 1200kgm^{-3} with a third of it submerged; find the density of the material of the cube.
22. (a) State Archimedes principle.

- (b) A solid weighs 25.0g in air and 19.0 when submerged in water. Find the density of the material of the solid.
23. (a) Define moment of a force.
(b) State the principle of moments.
24. (a) Give three applications of floatation
(b) A solid weighs 24N and 16N when completely immersed in water. Calculate
I. The relative density of a solid
II. Density of a solid
25. (a) define the following
I. Current
II. Potential difference
III. Ampere
IV. Volt
V. Coulomb
VI. Resistance
- (b) State ohm's law
- (c) State factors that affect resistance
- (d) A current of 2A flows in a conductor. How much charge flows past a section in 3minutes?
- (e) A current of 10mA flows for 4hours in a circuit. Calculate the quantity of electricity that flows in a circuit.

END

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