

EOT ONE 2019

PHYSICS S.2

TERM: 2HRS

INSTRUTCTIONS

Attempt all questions

SECTION A

1. Solids are not easily compressed because their molecules
 - A. Are far apart
 - B. Are closely packed
 - C. Vibrate about their mean positions
 - D. Have strong adhesive forces between them
2. The lowest possible temperature on a Kelvin scale is called
 - A. Ice-point
 - B. Steam-point
 - C. Absolute zero
 - D. Dew-point
3. The energy which a body has by reason of its motion is
 - A. Potential energy
 - B. Kinetic energy
 - C. Chemical energy
 - D. Internal energy
4. The density of a substance is the
 - A. Quantity of matter in unit volume
 - B. Volume of a given unit quantity of matter
 - C. Pull of gravity on a substance
 - D. Space occupied by the substance
5. When momentum of a body changes,
 - A. Its mass remains constant
 - B. Its velocity remains constant
 - C. The direction of movement remains constant
 - D. The force acting on it changes
6. A measuring cylinder of volume 39.25cm^3 has a length of 0.5cm. Find its radius in cm
 - A. 0.04
 - B. 0.2
 - C. 5.0
 - D. 25
7. A body of mass 1500g is placed on a planet where the acceleration due to gravity is two-fifth that of the earth. Find the weight of the body on the planet.

- A. $\frac{1500 \times 2 \times 10}{1000 \times 5}$
- B. $\frac{1500 \times 5 \times 10}{1000 \times 2}$
- C. $\frac{1500 \times 10}{5}$
- D. $\frac{1500 \times 2 \times 10}{5}$

8. Which one of the following has the lowest density
 - A. Mercury
 - B. Steam
 - C. Water
 - D. Ice
9. The force that keeps a body moving at constant speed in a circle is
 - A. Gravitational force
 - B. Elastic force
 - C. Centrifugal force
 - D. Centripetal force
10. When a copper (ii) sulphate crystal is placed at the bottom of a test tube containing water, a dense blue solution is formed in the water at the at the bottom due to
 - A. Diffusion
 - B. Capillary
 - C. Surface tension
 - D. Brownian motion
11. A force of 5N changes the momentum of a body from 50kgms^{-1} to 250kgms^{-1} , find the time taken
 - A. $1.7 \times 10^{-2}\text{s}$
 - B. $4.0 \times 10^1\text{s}$
 - C. $2.5 \times 10^{-2}\text{s}$
 - D. $6.0 \times 10^1\text{s}$
12. The force which holds the molecules of water together is called
 - A. Gravity
 - B. Adhesion
 - C. Cohesion
 - D. Electrostatic
13. Which one of the following is a derived unit?
 - A. Newton
 - B. Kilogram
 - C. Metre
 - D. Second
14. When no external forces act on two bodies in a collision, the total momentum of the bodies
 - A. Increases
 - B. Decreases
 - C. Remains constant

- D. Is proportional to the product of their masses.
15. Which of the following forms of energy is conserved in biogas?
- Chemical energy
 - Potential energy
 - Kinetic energy
 - Heat energy
16. Which of the following statements is correct about diffusion?
- It takes place at the same rate in all the state of matter.
 - It is faster in gases than in liquids
 - It is faster in liquids than in gases.
 - It does not depend on temperature.
17. A power of 0.5W is developed when a body of mass 200g is raised to the top of a wall in 20s. Find the height of the wall.
- 0.005m
 - 0.5m
 - 0.05m
 - 5.0m
18. The amount of space occupied by an object is its
- Mass
 - Weight
 - Volume
 - Density
19. A smoke cell is used to demonstrate phenomenon called
- Diffusion
 - Brownian motion
 - Capillary
 - Surface tension
20. Which one of the following quantities increases when the mass of the body is increased?
- Velocity
 - Acceleration
 - Displacement
 - Momentum
21. Which of the following is/ are true about surface tension of a liquid?
- It is constant at a given temperature
 - It changes with the pressure above the liquid
 - It is not affected by the amount of dissolved substances in the liquid.
- (i) only
 - (i) and (ii) only
 - (i) and (iii) only
 - (ii) and (iii) only
22. A person of mass 20kg develops a power of 20W on climbing steps in 120s. if each step is 0.2m high, find the number of steps

- A. $\frac{20 \times 20}{20 \times 0.2}$
- B. $\frac{20 \times 120}{20 \times 20}$
- C. $\frac{200 \times 0.2}{0.2 \times 200}$
- D. $\frac{0.2 \times 200}{20 \times 120}$

23. Which one of the liquids has abnormal expansion?

- A. Water
- B. Paraffin
- C. Mercury
- D. Alcohol

24. The SI unit of volume of liquids is

- A. Litres
- B. Metre cubed
- C. Decimetre cubed
- D. Milli litres

25. A solid measures 5cmx4cmx10cm. if the mass of the solid is 0.8kg, find its density in kgm^{-3}

- A. 4.0×10^{-9}
- B. 4.0×10^3
- C. 2.5×10^{-4}
- D. 2.5×10^8

26. The mechanical advantage of a simple machine may be increased by

- (i) Increasing the load
 - (ii) Increasing weight of movable parts of the machine
 - (iii) Reducing friction between moving parts.
- A. (i) and (ii) only
 - B. (i) and (iii) only
 - C. (ii) and (iii) only
 - D. (i) only

27. Which one of the following explains the motion of smoke particles in an air cell? They

- A. Vibrate because they are being knocked by air molecules.
- B. Vibrate because they are continuously colliding with each other
- C. Move about randomly because they are being knocked by air molecules
- D. Move about randomly because they are continuously colliding with each other.

28. The temperature of steam above water boiling at normal atmospheric pressure is the

- A. Upper fixed point
- B. Lower fixed point
- C. Fundamental interval
- D. Absolute temperature

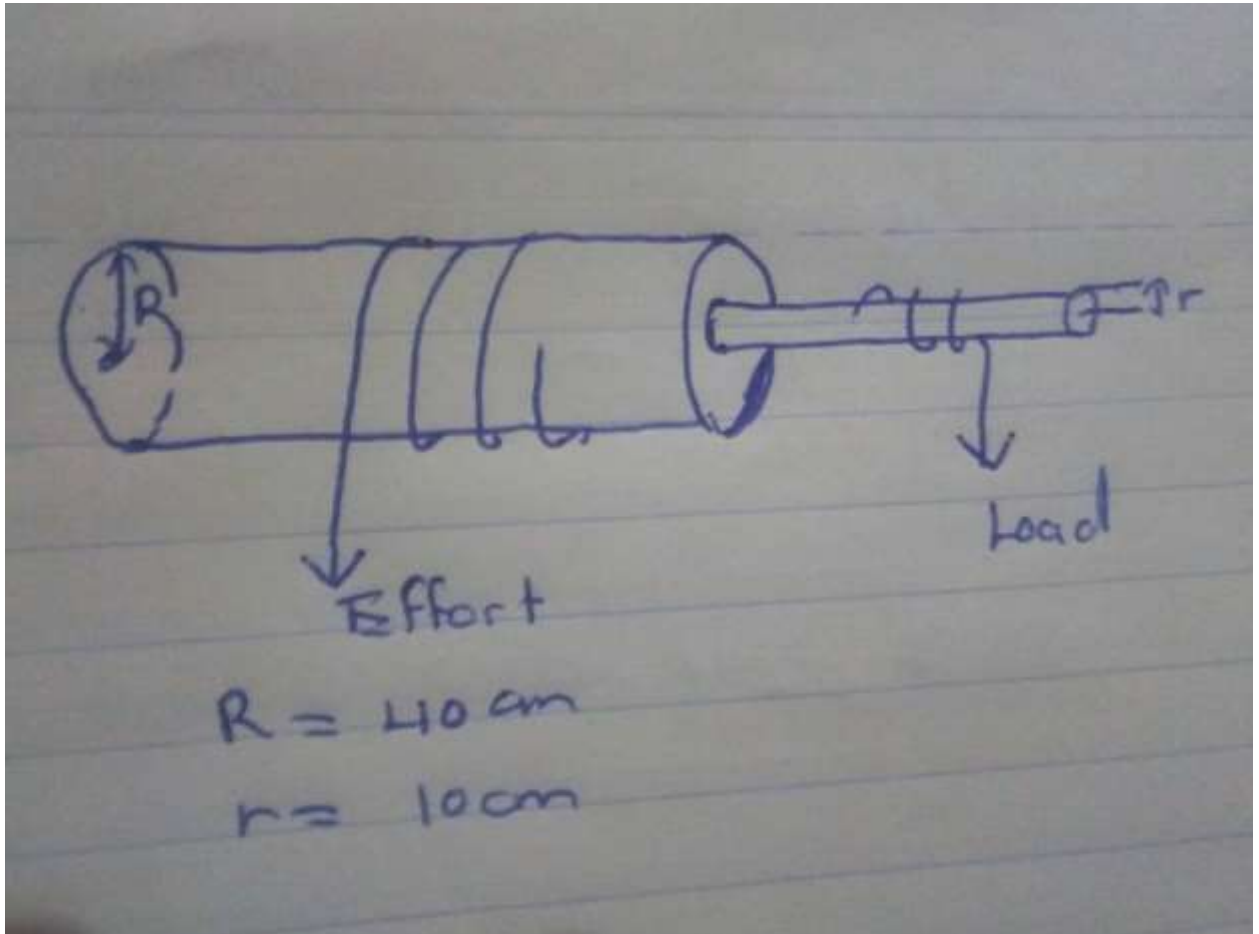
29. The purpose of treads on tyres is to make them

- A. Attractive
- B. Stronger

- C. Reduce friction
 - D. Grip the road surface
30. Brownian motion experiment shows that molecules of gases are
- A. Stationary
 - B. In motion in only one direction only
 - C. In constant random motion
 - D. More closely packed than molecules in liquids.

SECTION B

31. Figure below shows a wheel and axle system



When an effort of 300N is applied, a load of 900N is raised through a distance of 1.0m. Calculate

- (a) The velocity ratio
 - (b) The efficiency of the system
32. Smoke confined in an illuminated cell is observed through a microscope.
- (i) State what is observed
 - (ii) What conclusions can be drawn from the observation above
33. A man whose mass is 75kg climbs up a ladder of 6.5m high in 5s. calculate the
- (i) Work done
 - (ii) Power expended
34. (a) Explain why gaps are left between rails in a railway line

- (c) Why do gases expand much more than solids for the same temperature change?
35. (a) distinguish between the weight and mass of a body
(b) The force of gravity on the moon is one sixth of that on the earth. Determine the weight of a 12kg mass on the moon.
36. (a) Give two observations which show the existence of surface tension
(b) State two factors which affect surface tension of a liquid.
37. (a) Define Power
(b) Find the power developed when a crane lifts a load of 3000N through 5m in 5s.
38. (a) (I) What is meant by momentum
(II) State the principle of conservation of linear momentum.
(b) State newton's laws of motion
39. (a) What is meant by impulse of a force?
(b) Explain why a long jumper feels more pain once he falls on a hard ground than in sand.
40. (a) What is meant by reflection of light?
(b) State the laws of reflection
(c) Explain rectilinear propagation of light

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