

Name: _____ Adm No: _____ Class: _____

Candidate's Signature: _____ Date: _____

PHYSICS
FORM 1
END TERM 3 2024
Time: 2 HOURS

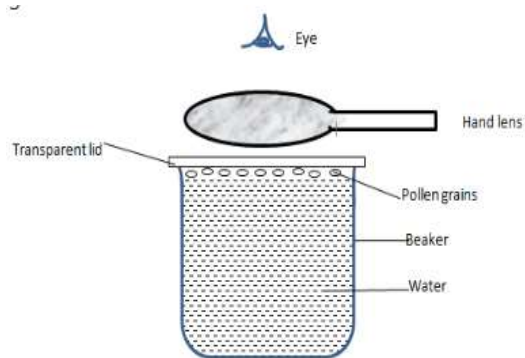
Instructions to Candidates

I. Answer all questions provided in the question paper.

1. a. Define the term matter. (1mks)

a. State the kinetic theory of matter (2mks)

b. A student observed some pollen grains on the surface of water in a beaker as shown below.



i. State the observation made. (1mk)

ii. Explain the observation in (i) above. (2mks)

iii. State the changes observed when the temperature of the water above is increased. (2mks)

2. The water level in a burette is 20cm^3 . If 50 drops of water fall from the burette and the average volume of one drop is 0.15cm^3 , what is the final water level in the burette? (3mks)

3. The mass of an empty density bottle is 15g. Its mass when filled with water is 45.0 g and 55.0 g when filled with liquid X. Calculate the density of liquid X if the density of water is 1000 Kg m^{-3} . (3mks)

4.

a. State two factors that affect pressure in liquids. (2mks)

b. A diver is 20 m below the surface of the water in a dam. If the density of water is 1000 Kg m^{-3} , determine the pressure due to the water on the diver. (Take $g = 10\text{ N Kg}^{-1}$) (3mks)

5. State three advantages of mercury over alcohol as thermometric liquid.(3mks)

6. a. Define the term temperature and state its SI unit. (2mks)

a. State three effects of anomalous expansion of water. (3mks)

7. Find the volume of a sphere whose radius is 8.0 cm. Give our answer in m^3 . (3mks)

8.

a. A body weighs 180 N in air and 60 N when submerged in water. Calculate the upthrust acting on the body. (2mks)

b. State and explain two factors that affect surface tension. (4mks)

c. State two effects of force on a body. (2mks)

9. A man has a mass of 65 kg. Calculate:

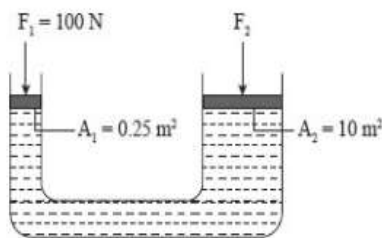
a. His weight on earth, where the gravitational field strength is 10 N/kg. (2mks)

b. The gravitational field strength of the moon if his weight on the moon is 110N.
(2mks)

10. Differentiate between a scalar quantity and a vector quantity giving examples in each. (4mks)

11. A man of mass 82 kg stands upright on a floor. If the area of contact of his shoes and floor is 400 cm², determine the average pressure he exerts on the floor. (Take $g = 10 \text{ N kg}^{-1}$) (4mks)

12. A small force of 100 N applied on the small piston of area A_1 equal to 0.25 m^2 produces a bigger force F_2 on a larger piston of area A_2 equal to 10 m^2 as shown in the figure below. Calculate the force F_2 . (3mks)

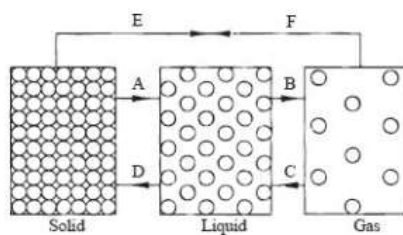


13.

- a. Define density. (1mark)
- b. The density of a material is $5\text{g}/\text{cm}^3$. Express this in SI unit. (2marks)
- c. The mass of an empty density bottle is 20g when empty and 40g when full of water. When full of a liquid L its mass is 220g. Given that the density of water is $1\text{g}/\text{cm}^3$, determine;
 - i. Mass of water in density bottle. (1mark)
 - ii. Volume of density bottle. (2marks)

iii. Density of liquid L. (3marks)

14. The following diagram represents the arrangement of particles in the states of matter.



a. Name processes A, B, C, D, E and F. (6mks)

b. Differentiate between solids and gases in terms of arrangement of particles. (2mks)