

NAME:.....CLASS:.....ADM NO:.....
ANESTAR SCHOOLS
PHYSICS
FORM TWO
END-OF-YEAR EXAM - 2022
TIME:

INSTRUCTIONS:

Answer the questions on the spaces provided.

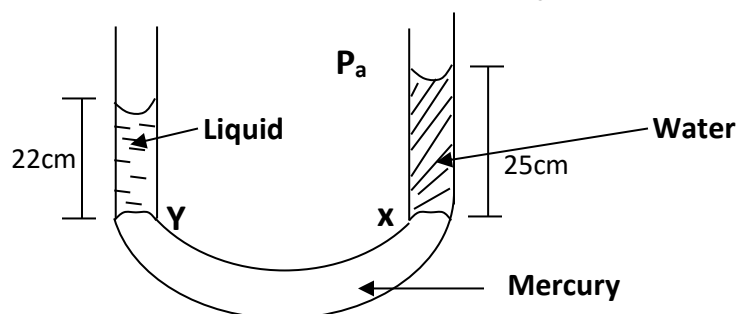
1. (a) Define density and state its SI unit (2mks)

(b) The mass of an empty density bottle is 20g. Its mass when filled with water is 40g and 50g when filled with liquid x. Calculate the density of liquid x if the density of water is 1000 kg/m^3 . (3mks)

2. State and explain two factors affecting surface tension. (2mks)

3. Give at three differences between mass and weight. (3mks)

4. The U-tube shown below is filled with water, mercury and another liquid.



Given that density of water is 1000kg/m^3 and gravity is 10N/kg .
Calculate;

i) Pressure at x. (2mks)

ii) Density of liquid in kg/m^3 . (2mks)

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

(b) In term of intermolecular space and intermolecular force, differentiate between solids, liquids and gases. (2mks)

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

(b) Convert the following temperatures to Kelvin.

i. -129°C . (1mk)

ii. 0°C . (1mk)

(c) State four factors affecting thermal conductivity. (4mks)

7. (a) By use of diagrams explain the three types of beams. (3mks)

(b) A pinhole camera of length 15cm forms an image 3cm high of a man standing 9m in front of the camera. What is the height of the man? (2mks)

(c) State two application of electrostatics. (2mks)

(d) Explain the dangers of electrostatics.

(3mks)

8. If the diameter of an oil drop is 0.5mm and it spreads on the surface of water to form an oil patch of diameter 0.2m. Estimate the length of the oil molecule and express your answer in metres. (4mks)

9. (a) Using a drawing and a brief explanation, show the three states of equilibrium.

(6mks)

(b) Explain the two factors affecting stability.

(2mks)

10. A convex mirror of focal length 9cm produces an image on its axis 6cm from the mirror. Determine the position of the object. (3mks)

(b) State two uses of convex mirrors. (2mks)

11.(a) State the hooks' law. (1mk)

(b) A metal cube suspended freely from one end of a spring causing it to stretch by 5.0cm. A 500g mass suspended from same spring stretches it by 2.0cm. If the elastic limit is not exceeded find;

i. The weight of metal cube. (2mks)

ii. By what length will the spring stretch if a mass of 1.5kg is attached to its end. (2mks)

12.(a) State the principle of moments. (2mks)

(b) A meter rule is pivoted at its centre, A glass block is hung from one end and the rule is balanced horizontally by hanging masses of 100g and 50g at 60cm and 80cm marks respectively. Calculate the mass of the glass block. (3mks)

13. Two people stand facing each other 200m apart on one side of a high wall and at the same perpendicular distance from it. When one fires a pistol, the other hears a report 0.6sec after the flash and a second sound 0.25sec later. Calculate;

a. The velocity of sound in air. (1mk)

b. The perpendicular distance of the people from the wall. (3mks)

14.(a) A lawn sprinkler has 40 holes, each of cross-section area of 200cm^2 . it is connected to a hose-pipe of cross section area of 1.6cm^2 . If the speed of water in the hose-pipe is 1.2m/s, calculate;

a. Flow rate of hose-pipe. (2mks)

b. Speed at which water emerges from the holes. (2mks)

(b) Define the following terms as used in fluid flow.

i. Volume flux.

(2mks)

ii. Mass flux.

(2mks)

15. A water wave travels 12m in 4 seconds. If the frequency of the wave is 2Hz.
Calculate;

i) The speed of the wave.

(2mks)

ii) The wavelength of the wave.

(2mks)