PHYSICS FORM 1 END TERM 3 2019 MARKING SCHEME

1. V = $\frac{m}{\rho} = \frac{13.6}{1.25}$ = 10.88cm^3.✓1
   New reading = 20.5+ 10.88 = 31.38cm^3✓1
2. Is the flow of charge (charge per unit time) SI units Ampere "A"
3. . $\frac{F_1}{A_1} = \frac{F_2}{A_2}$

   $\frac{200N}{25cm^2} = \frac{5000N}{A_2}$

   $A_2 = \frac{5000N}{200}$

   $= 625cm^2$

4. . The surface of the water behaves like a thin stretched elastic skin. So the needle will float. When detergent is added, it breaks the surface tension of the water making it to sink

5. Atmospheric pressure is higher than normal
   Presence of impurities/addition of impurities

6 .They move in continuous random movement because of uneven bombardment by the invisible particles or molecules of the air.

7. Magnetic force
   Electrostatic

8. a) T=X+273
   =25+273
   =298k

   b) T= -123+273
   =150K

9. Mass = 20 x 10x 5 x 2.5

   = 2500g = 2.5kg

   P = F

   A

   = 25 x 104

50

$= 5000 Nm^{-2}$

10. Anomolous expansion of water

11. Alcohol can measure lower temperatures than mercury

12. Mass of the object $= \frac{49}{9.8} = 5kg$ ✓

Acceleration due to gravity $= \frac{40.5}{5} = \underline{8.1N/kg}$ ✓

(2mks)

13. Boiling water would burst a clinical thermometer. ✓ (1mk)

14. Temperature difference between the ends of the conductor

The length of the conductor

Cross-section area of the conductor

Nature of the material

15. Hydrogen diffuses out of the porous pot faster than air diffuses into the porous pot. ✓

The pressure inside the porous pot reduces and the higher atmospheric pressure pushes

the water up the glass tube. ✓ (2mks)

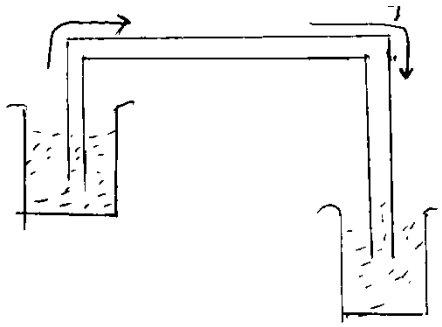
16. Atmospheric pressure = 13,600 x 0.76 x 10 ✓

= 103360N/m² ✓ (2mks)

17. a) It's the force that makes a free liquid surface behave like a stretched elastic skin✓1

b) Bubble flattens to a film✓1 and move up in the funnel in order to make its surface area as small as possible due to surface tension✓1

18.



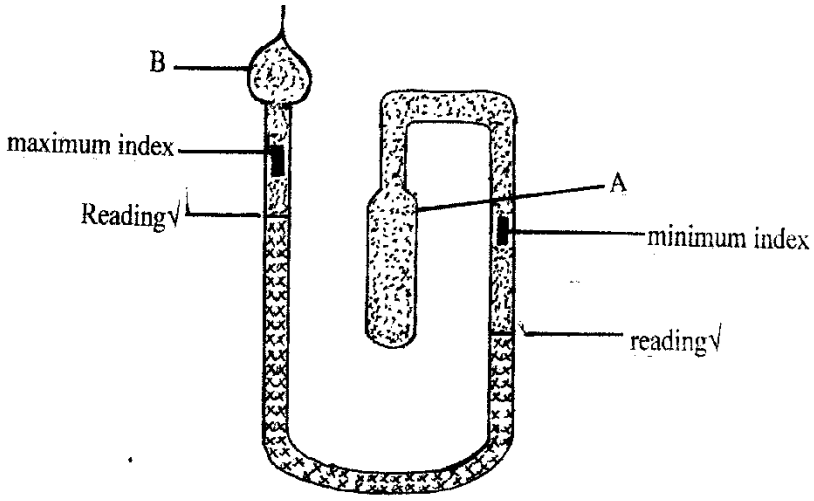
The flow stops because there is no atmospheric pressure to provide pressure difference✓1

19. **a)** **Alcohol**✓

b) When the temperature rises, bulb A expands pushing the mercury down on that side which in turn pushes the index up on the other side so that maximum temperature is recorded✓

When temperature goes down the vapour pressure in bulb B pushed the alcohol above the mercury down which in turn pushes the mercury down. ✓The index is left at the maximum point it had reached. The index on the other side is now pushed up and will be left at the highest point (minimum) when the situation reverses✓

c) To bring down the index to the level of mercury after reading maximum and minimum temperatures✓.



20. a) A – Bulb

B – Constriction

b) $35^oC - 43^oC$

21. Difference in pressure 760 – 700 = 60mm✓1

$\frac{60}{1000}$x 13600 x 10 = h x 1.3 x 10 ✓1

$$h = \frac{8160}{1.3 \times 10}$$

$h = 627.69\ m$✓1

22. To prevent heat loss/ gain through radiation. √ 1mk

23. For mercury cohesion force is greater/stronger than adhesion forces hence the drops are spherical for water the adhesion forces are greater than /stronger than cohesion forces hence water on the grass surface spreads wetting it.

24. Air will be compressed

25. $20cm^3$ of water is mixed with $30cm^3$ 0f liquid L. Calculate the density of the mixture given that the density of water is $1000kg/m^3$ and that of liquid L is $800kg/m^3$. (3 mks)

Volume of the mixture = 20 + 30 = 50cm3

Mass of water = 20 x 1 = 20g

Mass of L = 0.8 x 30 =24g

Total mass = 44g;

$$\textbf{Density} = \frac{mass}{volume};$$

$$\textbf{Density} = \frac{44}{50}$$

$$= 0.88g/cm3;$$

26. To detect the presence of charge on a body

To test the sign of the charge on a charged body

To test the quantity of charge on a charged body

To test for insulation properties of a material

27. a) Magnification =height of image/height of object

00.1=hi/5

Hi= 0.01*5

=0.05 m

The image is 5 cm high

b) magnification =image distance (v)/object distance (u)

0.01=v/10

V= 0.01*10

=0.1 m

The length of the pinhole camera is 10 cm

28. It's the degree of coldness or hotness of a body on some chosen scale