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**AA-14**

**FORM ONE PHYSICS**

**MARKING SCHEME**

1.

|  |  |
| --- | --- |
| **Basic physical quantity** | **Derived physical quantity** |
| - quantities that cannot be obtained from any other physical quantity e.g. length, mass, time, electric current e.t.c | - quantities that can be obtained by multiplication or division of basic physical quantities e.g. area, volume and density (3mks) |

2. – oiling

- greasing

- using rollers

- smoothening

3. – This is because cohesive forces between mercury molecules are stronger than adhesive force between molecules of mercury and glass (2mks)

4. This is because a parachute encounters higher resistance as it tails through the air due to large size while a stone experience less resistance due to its small size (2mks)

5. Wax in B fall off after sometime because the heat reaches the top of the glass by conversion and in A wax did not fall off because water and glass are poor conductors hence heat dos not reach the bottom of the glass (4mks)

6. Nylon dress gets charged as it rubs against the body and acquire static charges but as it is being

removed the charges escapes causing a crackling sound / cracking due to neutralization (2mks)

7. Maximum pressure is obtained when the surface is resting on a smaller are. (1mk)

Least are = (3x2)cm2 = 6cm2 = 0.0006m2

D = M/V

8.9g/cm3 = M / 30cm3

M = 30x 8.9 = 267g (1mk

 0.267 = 2.67N

P max.= F/A least

= 2.67N

 0.0006m2 (1mk)

= 4.45N/m2 (1mk)

8. Height of tree = length of the shadow of the tree

Height of the body length of the boy’s shadow

H tree = 800cm

150cm 200cm

Height of tree x 200 = 150 x 800

Height of tree = 150 x 800 = 600cm

 200 (3mks)



9.

10.

|  |  |  |
| --- | --- | --- |
| **Accident**  | **Cause**  | **Remedy**  |
| Burns  | Naked flames, splashes of conc. Acids & bases | Incase it is from the acids and bases run water through the affected part quickly  |
| Cuts  | Poor handling of glass apparatus and cutting tools | Seek assistance to stop bleeding and for immediate dressing up of the wound.  |
| Poisoning  | Inhaling poisonous fumes or actual small-owing of chemicals | Seek assistance immediately. |
| Electric shock | Touching exposed wires or using faulty electrical appliances | Put off the main switch before treating the chock |
| Eye damage  | Dangerous chemicals and bits of solids  | Incase it is a chemical wash off immediately with a lot of cold water |

11. A – melting B- evaporation

C – condensation D- freezing

E – Sublimation F- Sublimation

12. Volume = ½ bhl (1mk) = ½ x 7 x 6 x 4 = 84cm3(1mk)

13. 

Angle between incident ray and reflected ray = 35 + 35 = 70 (1mk)

14. length == 9mm

No. of turns = 15

Thickness of the thread = 9mm/15 = 0.6mm (1mk)

15. Resultant force = (4+2) – 3 = 3N



16.

17. This is because pressure depends on height. When the height is raised pressure or water coming out of the pipes increases. (1mk)



18.

 The paddle wheel is made to rotate in clockwise direction. This because of the convectional

 currents produced when water is heated forces the paddle to rotate.

19. -The electroscope is –very charged (1mk)

- As the +ve charge comes near the –ve charges there is attraction making the charges on leaf and late to move towards lap causing leaf to fall.

- As the greater + ve charge on rod is brought nearer the cap +ve charges are induced on cap and are repelt to leaf and plate casing leaf to diverge.

20. P = hG

h = 10cm = 0.1m

Gas pressure = hg + atmospheric pressure

= 0.1 x 1000 x 10 + 100,000

= 1000 + 100,000 = 1010,000N/m3

21. (a) current is the rate of flow of charge .

S.I unit is Ampere (A)

(b) Q = IT

= 2.5 x (1.5x60) = 225C

22. (i) This is because the densities of the two liquids are different and therefore the column of liquid

 that can support atmospheric pressure also different.

(ii) Density = Mass

 Volume

P = hg

hwwg = h x xg

= 0.3 x 1000 x 10 = 0.25 x x 10

= 0.3 x 1000 x 10 = 1200kg/m3

 0.25 x 10

23. (i) Bright surface are carbon particles /smoke particles

(ii) They move randomly

(iii) The random movement of these bright specks is because they are hit by the invisible air

 molecules which are in continuous random motion hence causing these particles to randomly move.

(iv) they are large compared to air particles

The reflect light when it falls on them

These two reasons make them visible under microscope

24. (a) e.m.f of an individual cell = 12v/8 = 1.v (1mk)

(b) This is because of the high internal resistance in the dry cells

(c) This is because during charging gases are being released at the electrodes. Hydrogen gas

 produced at the cathode can explode when burnt/heated.

25. (a) Density is defined as mass per unit volume

 S. I unit is kg/m3 (1mk)

(b) Mass of density bottle + water = 150g

mass of empty density bottle = 80g

mass of water = 70g

mass = density x volume

density of water = 1g/cm3

1g/cm3 = 70g/volume

Hence volume of water= 70m3

Therefore the volume of the density bottle = 70cm3 (1mk)

Mass of the oil = (130-80)g= 50g

Density of oil = 50g/70cm3 = 0.714g/cm3

***Or*** density of oil = Mb + O– Mb = 50 = 0.714g/cm3

Mb+ w-mb

(c) Density of resulting mixture = mass of water + mass of milk

 Their total volumes

D = M/V

Mass of water = D x V

= 1g/cm3 x 2000000cm3 = 2,000, 00g

Mass of milk = D x V

= 1.4g/cm3 x 1000000 = 1,400,000g

Density of the mixture = 2000000g + 1,400,000g

 2,000,000 + 1,000, 000

= 1.13g/cm3 (4mks)

26. (a) Force is defined as a pull or a push

S.I units = Newton (N)

(b) – can make objects change direction of motion

-Can make a stationary object start moving or increase the sped of moving object/cause acceleration

-Slows down or stop a moving object

-Distort (change shape) of an object

27. (i) To prevent the liquid which has gone past from returning back into the bulb and therefore allows

 time for the temperature to be ready.

(ii) The bulb is thin for effective heat transmission between the liquid and the body whose

 temperature is o be taken.

(iii) The tube is thin for high degree of accuracy or high degree of sensitivity r for small changes in

 temperature to be shown.

28. (a) Refers to the change in the size of the image relative to that of the object.

M = height of image hi

Height of object ho

(b) Height of image hi = distance of image from pinhole (v)

 Height of object ho distance of object from pinhole (u)

3cm = 15cm

 ho 900cm

ho = 900 x 3 = 180cm

15

29. (a) Area refers to the measure of surface coverage . S.I unit (m2) (1mk)

(b) 1m2 = 10,000cm2

 9m2 = 99 x10,000cm2 = 90,000cm2

 1

(c) – This is because salt particles are smaller than water particles and when they are mixed together some salt particles enters the spaces between the water particles/molecules and hence he resultant volume if less than the sum of (u + v)cm3. (2mks)