2023
FORM 2 PHYSICS
TERM 3 OPENER EXAMS
MARKING SCHEME

1.a) It deals with transformation of heat to and from one form to another

b) Do not eat in the laboratory

- Do not try any experiment without teacher's guidance
- Windows and doors should be kept open when carrying out experiment
- (and any other correct rules)

2. Total volume = 60 + 20

= 80 cm^3

Mass of water = ρ x v

= 20 x 1

= 20 g

Mass of milk = ρ x v

= 1.04 x 60

= 62.4

Total mass = 62.4 + 20

= 82.4 g

Mixture = $\frac{m}{v} = \frac{82.4}{80} = 1.03 g/cm^3 or 1030 kg/m^3$

3. a) Surface tension of water is greater than that of oil. Therefore, oil drop is pulled outwards into a thin film.

b) Temperature

Presence of impurities

4. $P = \frac{F}{A_{min}} = \frac{480N}{6m^2} = 80\ Pa\ or\ 80N/m^2$

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5. (a) Pressure applied at a point in liquid is equally transmitted to all other part of an enclosed liquid.

b) $\frac{F_1}{A_1} = \frac{F_2}{A_2}, \frac{500}{120} = \frac{F_2}{10}, F_2 = 4167N$

c) pressure is equal at both levels of mercury

$P = hg \qquad P_w \times P_l$

$25 \times 1000 = 30 \times$

$100 \qquad 100$

$\frac{250}{0.3} = \frac{0.3}{0.3}$

L = 833.3 kg/m^3 or 0.833 g/cm

6. a) Mater is made of particles that are in continuous random motion.

b) i) Particles of the perfumes diffuse from a region of high concentration to a region of low concentration, hence spreading throughout the class.

ii) Increase in temperature, raised the kinetic energy of the particles hence increasing their rate of motion.

c) Particles whose density is higher tends to move power, than the particles whose density is less. Hence this cause low rate of diffusion.

7. - It is visible

- It has a wide of range of temperatures
- It expands and contract uniformly

b) It has a lower temperature than boiling water, hence it will breaks. Methylated spirit is used instead of boiling water.

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8. a) $n = \frac{360}{\theta} - -1, \frac{360}{20} - 1 = 18 - 1 = 17$

b)

hi = v = m ho = 4m

ho u u = 2.5

m = 0.05

hi = 0.05

4

Hi = 4 x 0.05

= 0.2 m

ii) v = m

u

v = 0.05

2.5

V = 2.5 x 0.05

= 0.12 m

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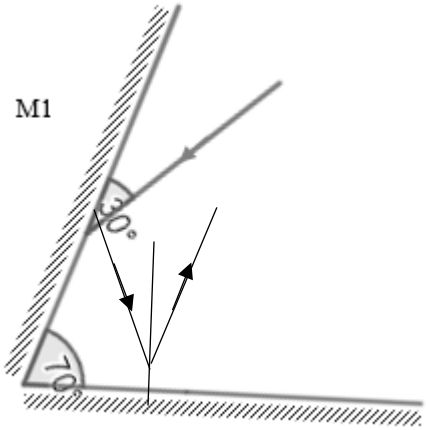

8.

- rays must be shown with the arrows
- angle = 10^{o}
- Calculation of other angle

(30 + 70 + x = 180)

9. a) like charges repel while unlike charges attract

b) - To detect charges of a body

- Distinguish between positions and negative charges
- To test if a materials is an insulator or a conductor.
- to indicate approximate, amount of charge on body (mark any two)

c) They last much longer

- provide large current without being damaged
- can be left in a discharged condition for longer period without being damaged
- require no special maintenance
- they are easily portable

(mark any two)

d) Q = it

$\underline{60\ Ah} = \underline{5A} \times t$

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SA SA

T = 12 hrs

e) i) primary cells are the cells that once discharged, cannot be recharged

ii) Secondary cells are cells that can be recharged again once the charge is depleted

10. a) this is because magnet can attract all magnet material on both sides but repulsion distinguish the polarity

b) Can be used in the hospitals to remove piece of iron fillings in human eye.

- used in microphones

- Used in production of electricity

and any other correct use)

11. a) 0.07 cm + 3.25 cm

= 3.32 cm

b) i) vol of drop = $\frac{4\pi r^3}{3}$

$\frac{4}{3} \times \frac{22}{7} \times (0.025)^3$

$= 6.55 \times 10^{-5} cm^3$

ii) thickness m = $\frac{vol}{Area}$

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Area of path = $^{22}/_{7}$ x 10

= 314.2857 cm^2

t = 6.66×10^{-5}

314.2857

= 0.02084×10^{-5}

= 3.084×10^{-7}

= 2.084×10^{-9}m

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