

END OF TERM 3 EXAMINATIONS 2023
PHYSICS FORM ONE MARKING SCHEME

- 1) (i) Is the measure of the distance between two points
(ii) -Place the metre rule in contact with the object being measured
-Align the zero mark with one end of object
-With eye directly above the other end read the mark coinciding with this end
- 2) (i) A quantity whose value cannot be determined from other quantities
(ii) Mass-kilogram
Length-metre
Time-second
Temperature-Kelvin
Electric current-Ampere
Luminous intensity-Candela
Amount of substance-mole
(Any two)
- 3) Area of a square on map represents $5000 \times 5000 = 25000000 \text{cm}^2$ on actual ground
 $= 2500 \text{m}^2$
Actual area $= 2500 \times 48.5$
 $= 121250 \text{m}^2$
- 4) (a) Capillarity
(b) The adhesive between the glass and water molecules is greater than the cohesive force in water hence the water rises up the tube.
- 5) Temperature
Presence of impurity
- 6)
$$P = \rho hg$$
$$= \frac{740 \times 13600 \times 10}{1000}$$
$$= 100640 \text{Pa}$$
- 7) A person sucks on the upper end of straw, the pressure inside the straw reduces, atmospheric pressure acting on the liquid surface forces liquid up through the lower end
- 8) Matter is made up of small particles that are in a continuous random motion
- 9) (a) The smoke particles are in collision with unseen air particles which are in a continuous random motion

(b) The motion increases.

Increase in temperature increases the kinetic energy of the particles hence increasing the motion

10) (i) The movement of particles from a region of high concentration towards a region of low concentration

(ii) Temperature

Density

11)

Mass	Weight
Quantity of matter in a body	Gravitational pull on an object
Measured using beam balance	Measured using spring balance
SI unit is the kilogram	SI unit is the Newton
Constant everywhere	Varies
Scalar quantity	Vector quantity

12)

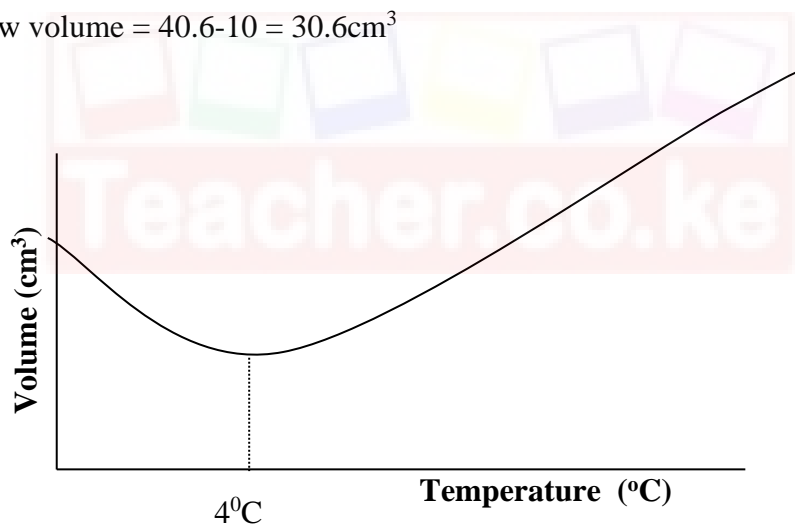
$$\frac{120 \times 10}{1000 \times 3} = 0.4N$$

13)

$$\text{Added volume} = 50 \times 0.2 = 10\text{cm}^3$$

$$\text{New volume} = 40.6 - 10 = 30.6\text{cm}^3$$

14)



15) Gases diffuse faster than solids

16) (a) Is the force acting perpendicularly per unit area

(b) (i) An enclosed fluid transmits pressure equally in all directions

(ii)

I. Pressure exerted on oil by piston A (2mks)

$$\text{Pressure} = \frac{60N}{0.03\text{m}^2} = 2000Pa$$

II. Maximum force that can be lifted by the system (2mks)

$$\begin{aligned} \text{Force} &= P \times A = 2000 \times 0.5 \\ &= 1000\text{N} \end{aligned}$$

(iii) Oil lubricates the system

Oil does not rust or corrode the machine

17) (i) It makes or breaks (closes or opens) the circuit hence maintaining the temperature at the set value.

(ii) When the switch is closed, current flows in the circuit and the heating element becomes hot. As temperature increases the bimetallic strip expands and curves outwards hence opening circuit. As temperature falls the bimetallic strip contracts and contacts close. The process is repeated.

18) (a) The cork on the black plate.

Black surfaces absorb heat more than white surfaces

(b) (i) When the water is heated it expands, becomes less dense and rises. As cool water moves down to replace it convection currents are set up causing the wheel to rotate.

(ii) Anticlockwise

(c) Vacuum – reduces heat loss by convection and conduction

Double silvered walls – reduces radiation

Rubber cork – reduces conduction and evaporation

19) (a) density is the mass per unit volume of a substance

(b) A solid block measures 25cm by 10cm by 8cm. if the block has a mass of 3.2kg, calculate:

$$\begin{aligned} \text{i) } V &= l \times w \times h \\ &= 25 \times 10 \times 8 \\ &= 2000\text{cm}^3 \end{aligned}$$

$$(ii) \text{ Volume} = \frac{2000}{1000000}$$

$$= 0.002\text{m}^3$$

$$\text{Density} = \frac{3.2}{0.002}$$

$$= 1600\text{kg/m}^3$$

(c) Mass of water = 49.8-24.8 = 25g

Mass of liquid = 48.8-24.8 = 24g

Volume of bottle = volume of water = 25cm³

$$\text{Density of liquid} = \frac{\text{mass of liquid}}{\text{volume}} = \frac{24}{25}$$

$$= 0.96\text{cm}^3$$

20) (a) A liquid suitable for use in a thermometer

(b) Good conductor of heat

Expand uniformly

Wide temperature range

Opaque

Does not wet glass

(c) Mercury is: Opaque

Good conductor of heat

Does not wet glass

Has a high boiling point

(e) (i) By using a thin walled bulb

(ii) By using a narrow bore

21) (a) -The incident ray, the normal and the reflected ray all lie on the same plane

-The angle of incidence is equal to angle of reflection

(b)

$$N = \frac{360}{\theta} - 1$$

$$N = \frac{360}{60} - 1$$

$$= 5 \text{ images}$$

(c) Dressing mirrors, kaleidoscope, mirror periscope