

Section – A (40 Marks)

1. Choose the correct answer.

- (a) The temperature at which a solid gets converted into its liquid state is called its.
- (i) boiling point (ii) melting point
(iii) freezing point (iv) dew point
- (b) The density of alcohol is 800 kg/m^3 . Its relative density is
- (i) 800 (ii) 8000 (iii) 8 (iv) 0.8
- (c) The unit of atmospheric pressure is
- (i) atm (ii) pascal (iii) kgf (iv) newton
- (d) The S.I unit of power is
- (i) Joule (ii) Watt (iii) kilowatt (iv) H.P
- (e) The angle between incident ray and the normal is
- (i) angle of deviation (iii) angle of refraction
(ii) angle of incidence (iv) angle of emergence
- (f) When a light ray enters from a denser medium to a rarer medium
- (i) The light ray bends towards the normal.
(ii) Angle of incidence is less than angle of refraction.
(iii) Speed of light decreases.
(iv) Speed of light remain unchanged.
- (g) One horsepower is equal to
- (i) 100W (ii) 735W (iii) 764 W (iv) 746 W
- (h) The useable form of mechanical energy is
- (i) Electric potential energy
(ii) Gravitational potential energy
(iii) Kinetic energy
(iv) None of the above
- (i) Which one is not correct.
- (i) $1 \text{ kgf m} = 9.8 \text{ Nm}$ (ii) $1 \text{ kgf} = 1000\text{gf}$
(iii) $1\text{N} = 1000\text{gf}$ (iv) $1 \text{ gf} = 980\text{dyne}$

- (j) The boiling point of a liquid _____ when impurities are added to it.
- (i) increases (ii) decreases
(iii) decreases (iv) None of the above
- (k) If the density of the body is more than the density of the liquid then the body
- (i) Floats (ii) sinks
(iii) Floats with some part outside the liquid
(iv) Float just below the surface of the liquid
- (l) A liquid exerts pressure in
- (i) upwards direction
(ii) downward direction
(iii) all directions
(iv) sideways
- (m) A light ray does not bend at the boundary in passing from one medium to another medium if the angle of incidence is
- (i) 0° (ii) 45° (iii) 60° (iv) 90°
- (n) The normal atmospheric pressure is
- (i) 76m of mercury
(ii) 76cm of mercury
(iii) 76 Nm^{-2}
(iv) 76 mm of mercury
- (o) Joule per kilogram is the S.I unit of
- (i) Latent heat (ii) Specific latent heat
(iii) Heat (iv) Temperature

2. Fill in the blanks.

[5]

- (a) $1 \text{ kWh} = \text{_____ J}$
- (b) $100 \text{ kg/m}^3 = \text{_____ g/cm}^3$
- (c) $1 \text{ atm} = \text{_____ Pa}$
- (d) $1 \text{ kgf} \times 1 \text{ m} = \text{_____ joule.}$
- (e) Solid carbon dioxide is known as _____.

3. Match the following. [5]

"A"	"B"
(i) P	mgh
(ii) A	$F \times d$
(iii) M	$F \times \frac{d}{t}$
(iv) W	$\frac{F}{P}$
(v) P.E.	$d \times v$

4. (a) Write 2 points of differences between density and relative density of a substance. [2]
- (b) State two conditions when no work is done by a force. [2]
- (c) State the Snell's laws of refraction of light. [2]
- (d) State two factors on which the pressure at a point in a liquid depends. [2]
- (e) Write the flow chart showing the complete cycle of change of state of matter. [2]
- (f) How does the density of a body and that of a liquid determine whether the body will float or sink into that liquid? [2]
- (g) A body of mass 5 kg is taken from a height of 3m to 6 m. Find the increase in the potential energy of the body. Take $g = 10 \text{ N/kg}$. [3]

Section – B (40 Marks)
(Answer ANY FOUR)

5. (a) Write 3 points of differences between thrust and pressure. [3]
- (b) State 3 factors which affect the rate of evaporation of a liquid and explain how they affect the rate of evaporation. [3]
- (c) Draw diagrams to show the refraction of light from.
- (i) air to glass and (ii) glass to air.
- In each diagram, label the incident ray, refracted ray, the angle of incidence (i) and the angle of refraction (r). [4]
6. (a) How does the effect of a force differ when it is applied on a [3]
- (i) rigid body (ii) non-rigid body
- (b) The mass of a copper piece is 44g. A measuring cylinder contains water to a level of 12ml. The water level rises to 17ml mark when the copper piece is dipped in the measuring cylinder. Find [3]
- (i) the volume of copper piece
- (ii) the density of copper in g/cm^3
- (iii) density of copper in kg/m^3

- (c) State the energy changes in the following while in use. [4]
- (i) A microphone
 - (ii) An electric bulb
 - (iii) Thermo couple
 - (iv) Dynamo
7. (a) Write 3 points of differences between energy and power. [3]
- (b) Calculate the pressure in pascal exerted on a surface of 0.5m^2 by a thrust of 100 kgf. [3]
- (c) (i) State 2 factors on which power spent by a source depends. [2]
- (ii) Water is heated from 0°C to 10°C . How does the density of water change with temperature? [2]
8. (a) (i) We do not feel uneasy even under the enormous atmospheric pressure. Give a reason. [2]
- (ii) Write the S.I unit of electrical energy. [1]
- (b) A pump is used to lift 100 kg of water from a well 60m deep, in 20 sec. If force of gravity on 1 kg is 10N, find [3]
- (i) work done by the pump.
 - (ii) potential energy stored in water.
 - (iii) power spent by the pump.
- (c) (i) Define the term moment of force. State how its S.I unit is related to its C.G.S unit. [2]
- (ii) State two factors which affect moment of force. [2]
9. (a) Write 3 points of differences between the 3 states of matter. [3]
- (b) Define force. Give its S.I unit. Write how 1 kgf is related to the S.I unit of force. [3]
- (c) (i) What is mechanical energy? [1]
- (ii) Define the S.I unit of work done. [1]
- (iii) State two factors on which the kinetic energy of a moving body depends. [2]

*****ALL THE BEST*****

