# PHYSICS

# BOOKS - SURA PHYSICS (TAMIL ENGLISH)

# PROBLEMS-2 MARKS

## Subjective Type Question

**1.** Two bulbs are having the ratings as 60 W, 220 V and 40 W, 220 V respectively. Which one

has a greater resistance?

**2.** Calculate the coefficient of cubical expansion of a zinc bar whose volue is increased $0.25m^3$ from $0.3m^3$ due to change in its temperature of 50K.

**3.** A source producing a sound of frequency 500 Hz is moving towards is listener with a velocity of 30 $ms^{-1}$. The speed of the sound is $330ms^{-1}$. What will be the frequency heard by listener?

**4.** Calculate the number of molecules in 54 gm of $H_2O$?

**5.** For a person with hypermeteropia, the near point has moved to 1.5 m. calculate the focal length of the correction lens in order to make his eyes normal.

**6.** Find the mass of potassium chloride would be needed to form a saturated solution in 60 g of water at 303 K? Given that solubility of the KCl is 37/100 g at this temperature.

**7.** Calculate the pH of $1 \times 10^{-4}$ molar solution of NaOH.

**8.** Calculate the velocity of a moving body of mass 5 kg whose linear momentum is 2.5 $kgms^{-1}$.

**9.** Find the mass of 2.5 mole of oxygen atom .

**10.** When an object is placed at 25 cm from a concave lens, a virtual image is produced at a distance of 10 cm. Calculate the magnification produced by the lens.

**11.** Calculate the curren and the resistance of a 100W, 200V electric bulb in an electric circuit.

**12.** Find the speed of sound in air at $23°C$. (consider the speed of sound in air at $0°C$ is $331.3ms^{-1}$).

**13.** A person with myopia can see objects plaecd at a distance of 4 m. if he wants to see objects at a distance of 20 m, what should be the focal length and power of the concave lens he must wear?

**14.** The potential difference between two conductor is 110 V. How much work in moving 5 C charge from one conductor to the other ?

**15.** A radon specimen emits radiation of $3.7 \times 10^3 GBq$ pe second. Convert this disintegration in terms of curie. (one curie $= 3.7 \times 10^{10}$ disintegration per second)

**16.** At what speed should a source of sound move away from a stationary observer so that

observer finds the apparent frequency equal to half of the original frequency?

▶ **Watch Video Solution**

**17.** A 110 V light bulb takes 0.9 A current and operates 12h/day. Determine the energy consumed by the bulb for 30 days.

▶ **Watch Video Solution**

**18.** Calculate the % of each element in calcium carbonate. (Atomic mass: C-12, O-16, Ca-40)

**19.** A door is pusehd, at a point whose distance from the hinges is 90 cm, with a force of 40 N. calculate the moment of the force about the hinges.

**20.** If 50 g was the loss in mass as a result of a fissionable reaction, how much energy will have been produced ?

▶ Watch Video Solution

**21.** 0.3 mole of aluminium (Atomic mass of Al=27).

▶ Watch Video Solution

**22.** Calculate the pH of a solution in which the concentration of the hydrogen ions is $1.0 \times 10^{-8} mol$ $litre^{-1}$.

**23.** The solubility of sodium nitrate at $50°C$ and $30°C$ is 114g and 96g respectively. Find the amount of salt that will be thrown out when a saturated solution of sodium nitrate

containing 50 g of water is cooled from $50°C$

to $30°C$?

**24.** If boiling point of water is $95°F$, what will

be the reading in kelvin scale ?