

**Guess Paper – 2014**  
**Class – XI**  
**Subject – Physics**

## Numerical problems

1. The density of air is  $1.293 \text{ kg. } m^{-3}$ . Express this value in c.g.s. units. (Ans.  $0.001293 \text{ g } cm^{-3}$ )
2. Calculate the volume of a cube of side  $1 \text{ mm}$  in  $m^3$ . (Ans.  $10^{-9} m^3$ )
3. The radius of a hydrogen atom is about  $0.53 \text{ \AA}$ . What is the atomic volume (in  $m^3$ ) of a gram of hydrogen atom? (Ans.  $3.76 \times 10^{-8} m^3$ )
4. The angular diameter of the sun from the earth is  $15$  minutes. If the distance of the earth from the sun is  $1.48 \times 10^{11} \text{ m}$ , calculate the diameter of the sun. (Ans.  $6.46 \times 10^8 \text{ m}$ )
5. The mass of a box is  $2.3 \text{ kg}$ . Two gold pieces of masses  $20.15 \text{ g}$  and  $20.17 \text{ g}$  are added to the box.
  - A) What is the total mass of the box? (Ans.  $2.3 \text{ kg}$  approx.)
  - B) What is the difference in the masses of the pieces to correct significant figures? (Ans.  $0.02 \text{ g}$ )
6. The length and breadth of a sheet are measured by a meter scale as  $5.8 \text{ cm}$  and  $3.5 \text{ cm}$ . Calculate the maximum error in the area of the sheet. ( $4.46 \%$ )

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