CBSE

UNITS AND MEASUREMENTS WS 1

Class 11 - Physics

Section A

1. _____ are units of physical quantity that can be expressed as a combination of fundamental physical quantities. **[1]**

   a) Complex units
   b) Basic units
   c) Derived units
   d) Simple units

2. The unit of energy is: **[1]**

   a) $g\text{-}cm/s^2$
   b) kilowatt
   c) J/s
   d) watt-day

3. Which of the following is not a physical quantity? **[1]**

   a) Time
   b) Impulse
   c) Kilogram
   d) Mass

4. Which of the following is a derived unit? **[1]**

   a) Unit of volume
   b) Unit of mass
   c) Unit of time
   d) Unit of length

5. The solid angle subtended by the periphery of an area $1cm^2$ at a point situated symmetrically at a distance of 5 cm from the area is **[1]**

   a) $6 \times l0^{-2}$ steradian
   b) 8×10^{-2} steradian
   c) $4 \times l0^{-2}$ steradian
   d) 2×10^{-2} steradian

6. In SI system the fundamental units are **[1]**

   a) meter, kilogram, second, ampere, Kelvin, mole and watt
   b) meter, Newton, second, ampere, Kelvin, mole and candela
   c) meter, kilogram, second, coulomb, Kelvin, mole, candela and horse power
   d) meter, kilogram, second, ampere, Kelvin, mole and candela

7. Horse power is unit of **[1]**

   a) Distance
   b) Time
   c) Power
   d) Current

8. Joule is the SI unit of **[1]**

   a) power
   b) acceleration
   c) force
   d) energy

9. Physical quantities are **[1]**

a) quantities such as kilos, pounds and gallons.
b) quantities such as length, mass and time.
c) quantities such as pounds, dollars and rupees.
d) quantities such as degrees, radians and steradians.

10. SI unit of capacitance is **[1]**

a) ohm-second
b) Wb
c) $A\text{-}m^2$
d) coulomb $(volt)^{-1}$

11. Newton is the SI unit of **[1]**

a) acceleration
b) work
c) power
d) force

12. The damping force on an oscillator is directly proportional to the velocity. The units of the constant of proportionality are **[1]**

a) $kgms^{-1}$
b) $kgms^{-2}$
c) kgs^{-1}
d) kgs

13. **Assertion (A):** Radian is the unit of distance. **[1]**
Reason (R): One radian is the angle subtended at the centre radius of the circle.

a) Both A and R are true and R is the correct explanation of A.
b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false.
d) A is false but R is true.

14. **Assertion (A):** When we change the unit of measurement of a quantity, its numerical value changes. **[1]**
Reason (R): Smaller the unit of measurement smaller is its numerical value.

a) Both A and R are true and R is the correct explanation of A.
b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false.
d) A is false but R is true.

15. **Assertion (A):** The value of temperature can be positive or negative. **[1]**
Reason (R): Temperature is a vector quantity.

a) Both A and R are true and R is the correct explanation of A.
b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false.
d) A is false but R is true.

16. Why length, mass and time are chosen as base quantities in mechanics? **[1]**

17. In SI units, the value of Stefan's constant is $\sigma = 5.67 \times 10^{-8}\ Js^{-1}\ m^{-2}\ K^{-4}$. Find its value in CGS system. **[1]**

18. Name physical quantities whose units are electron volt and Pascal. **[1]**

19. An electric bulb has a power of 500 W. Express it in CGS units. **[1]**

20. What is the necessity of selecting some units as fundamental units? **[1]**

21. Can there be a physical quantity that has no units and no dimensions? **[1]**

22. Give four important characteristics of a standard unit. **[1]**

23. Name the SI unit used to express the amount of substance. **[1]**

24. Is it Possible to have length and velocity both as fundamental quantities? Why? **[1]**

25. Why do we have different units for same physical quantity? **[1]**

26. Can a quantity have different dimensions in different systems of units? **[1]**

27. Name and define the SI unit of luminous intensity. **[1]**

28. Write S.I unit of luminous intensity and temperature. **[1]**

29. Define one mole. **[1]**

30. Does the magnitude of a physical quantity depend on the system of units chosen? **[1]**

31. How is SI a coherent system of units? **[1]**

32. Define S.I. unit of solid angle? **[1]**

33. What is common between bar and torr? **[1]**

Section B

34. The density of mercury is 13.6 g cm^{-3} in CGS system. Find its value in SI units. **[2]**

35. Suppose there existed a planet that went around the sun twice as fast as the earth. What would be its orbital size as compared to that of the earth? **[2]**

Section C

36. Give the definitions for SI unit of seven basic quantities. **[3]**

Section D

37. **State True or False:** **[4]**

    (a) Energy and its density have the same unit. **[1]**

    (b) It is possible to have length and velocity both as fundamental quantities. **[1]**

    (c) The size of the unit (u) of a physical quantity and its numerical value (n) are related to each other by the relation nu = constant. **[1]**

    (d) The FPS system is based on Gaussian system of units, which uses centimetre, gram and second for length, mass and time, respectively. **[1]**

38. **Fill in the blanks:** **[4]**

    (a) The units of measurement of all other physical quantities which can be obtained from fundamental units are called _____. **[1]**

    (b) The SI unit of Planck's constant is _____ and it is same for moment of _____. **[1]**

    (c) The SI unit of luminous intensity is _____. **[1]**

    (d) The physical quantities whose defining operations are based on other physical quantities are called _____ quantities. **[1]**