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**PHYSICS
MEASUREMENTS**

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PHYSICS

Measurements

1. The International System of Units (SI) based on **seven base units**.
2. The SI Unit of length is **metre (m)**.
3. SI Unit of amount of substance is **mole**
4. SI Unit of temperature is **Kelvin**
5. Unit of Power is **Joule/sec or Watt**.
6. SI Unit of electric current is **Ampere**
7. For measuring large distances, the **light year** is the used.
8. **1 light year = $9.46 \times 10^{15}m$**
9. **1 tonne (t) = 1000 (or 10^3) kg**
10. Unit of Time: The SI unit of time is the **second(s)**

11. The ordinary mile is more precisely known as the **statute mile**

12. SI Unit of luminous intensity is **Candela**

13. Radius of the earth: **6.4×10^6 m.**

14. The planet Mars has **$1/2$ the radius of the earth**, the size of a geosynchronous orbit is **6.5 earth radii.**

15. The earth-moon separation is about **60 earth radii.**

16. The mean distance from the earth to the sun is called an **astronomical unit.**

17. An astronomical unit approximately **1.5×10^{11} m.**

18. The star nearest the Sun, **Proxima Centauri**, is about 270,000 AU away.

19. To measure small lengths, we use **Vernier callipers or screw gauge.**

20. The unit '**litre**' is also used to measure the volume of liquids.

21. **Standard measuring vessels** are used to measure volumes of liquids like milk, kerosene oil, mobile oil at petrol pumps, etc.
22. Distance is a **scalar quantity**
23. SI Unit of Frequency is **Hertz**
24. The weight may vary from place to place but the **mass stays constant**.
25. SI Unit of Energy is **Joule**
26. SI Unit of Pressure is **Pascal**
27. $1 \text{ parsec} = 3.08 \times 10^{16} = 3.26$
Light year
28. 1 Horse power = **746 W**
29. Our sense of touch is not always a reliable guide to the **degree of hotness** of an object.
30. **Temperature** is a measure of the degree of hotness of an object.
31. **Thermometer** is a device used for measuring temperatures.
32. **Clinical thermometer** is used to measure our body temperature.

33. The range of this thermometer is from **35°C to 42°C** .

34. The range of laboratory thermometers is usually from **-10°C to 110°C** .

35. The normal temperature of the human body is **37°C** .

36. The distance moved by an object in a unit time is called its **speed**.

37. **Periodic motion** of a pendulum has been used to make clocks and watches.

38. Motion of objects can be presented in pictorial form by their **distance-time graphs**.

39. The distance-time graph for the motion of an object moving with a constant speed is a **straight line**.

40. The shortest distance measured from the initial to the final position of an object is known as the **displacement**.

41. Automobiles are fitted with a device that shows the distance

travelled. Such a device is known as an **odometer**.

42. As the object covers equal distances in equal intervals of time, it is said to be in **uniform motion**.

43. The tendency of undisturbed objects to stay at rest or to keep moving with the same velocity is called **inertia**.

44. The first law of motion is also known as the **law of inertia**.

45. **Inertia** is the natural tendency of an object to resist a change in its state of motion or of rest.

46. The **mass** of an object is a measure of its inertia.

47. In an isolated system (where there is no external force) , the total momentum remains **conserved**.

48. **Heavier or more massive** objects offer larger inertia.

49. Law of conservation of momentum is based on **Newtons 3rd law of motion**.

50. Mechanical motion is of two types, **transitional (linear) and rotational (spin)** .

51. The **instantaneous velocity** shows the velocity of an object at one point.

52. **Acceleration** shows the change in velocity in a unit time.

53. Force acting on an object may cause a change in its **state of motion or a change in its shape**.

54. When the velocity decreases the body is said to undergo **retardation or deceleration**.

55. **Galileo** was the first to find out that all objects falling to Earth have a constant acceleration of **9.80 m/s²** regardless of their mass.

56. The weight of a body is **maximum** at the poles and **minimum** at equator.

57. On the surface of the moon, the value of the acceleration due to gravity is nearly **one-sixth** of that on earth.

58. An object on the moon would weigh only **one-sixth** its weight on earth.

59. Force acts in the **opposite** direction to the way an object wants to slide.

60. Measures of friction are based on the **type of materials** that are in contact.

61. Concrete on concrete has a **very high coefficient** of friction.