



SARASWATI Education Society's  
**SARASWATI Institute of Technology**

Learn Live Achieve and Contribute

Kharghar, Navi Mumbai - 410 210.

Vision : "To excel in the field of technology by creating technocrats with value based professionalism."

Mission : To provide technical expertise to fulfill the needs of the industry.

To impact ethical value & professional responsibilities

To achieve excellence in academics.

**Topic Name :Units & Measurements    Date:24/08/2026    Assignment No-1**

1. Define Physical quantity with suitable example
2. write Two Supplementary Fundamental Physical quantities With Their Unit .
3. Define: (a) Relative Error      (b) Random Error
4. State applications of Vernier Caliper And Micrometer screw gauge
5. state seven fundamental quantities.
6. state types And Application of Ancient astronomical instruments
7. Diameter of wire measured by micrometer Screw gauge is 0.345 cm. if the L.C. of micrometer Screw gauge is 0.001 cm, calculate percentage error
8. Difference between fundamental quantities and derived quantities .
9. Difference between scalars and vectors.
10. state dimensions of (i)Density (ii)Speed(iii)Impulse (iv)Volume.
11. state and explain types of errors.
12. state the number of significant figures in the following measurements  
(i) 0.0005 (ii) 0.0500 (iii) 8.5775 iv) 1.634

Date of Submission  
01/09/2026

Prepared by,  
Mrs. Mangal Nagashenkre



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Topic Name: **Electricity, Magnetism and Semiconductors**

Date:11/09/2026

Assignment No-2

1. State Coulomb's Inverse Square Law and write its unit.
2. Define Electric Field and Electric Field Intensity with their units.
3. State the formula for potential difference due to a point charge.
4. State properties of magnetic lines of force.
5. Define magnetic flux and magnetic flux density with their units.
6. State Ohm's law with formula and mention unit of resistance.
7. Two electric charges of  $5\mu\text{C}$  and  $20\mu\text{C}$  placed 50 cm apart. Calculate the force between them.
8. State the formula for resistance when connected in series and in parallel.
9. Draw the circuit diagram for converting galvanometer into ammeter and into voltmeter.
10. State Joule's law mention formula with unit.
11. Define semiconductor with some examples.
12. state the types of semiconductors also write the examples of impurities added in it.
13. Differentiate between P type semiconductor and N type semiconductor.
14. Explain construction and working of Forward biased and reverse biased of PN junction diode.
15. Explain diode as a half wave rectifier with neat diagram.

Date of Submission  
24/09/2026

Prepared by  
Mr.Yogesh Gulekar



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Topic Name: **Thermometry and Fiber Optics**

Date: 04/11/2026

Assignment No-3

1. State different temperature scales using formula.
2. Define three modes of heat transfer.
3. State the law of thermal conductivity using formula and unit.
4. State Newton's law of cooling and also state the unit of rate of loss of heat.
5. Define all three Gas Laws using formula.
6. State general gas equation and obtain the relationship between  $C_p$  and  $C_v$ .
7. Convert following into Fahrenheit 1)  $20^\circ\text{C}$  2)  $30^\circ\text{C}$  3)  $27^\circ\text{C}$ .
8. Convert following into Celsius scale 1)  $100^\circ\text{C}$  2)  $103^\circ\text{C}$  3)  $92.7^\circ\text{C}$ .
9. A gas at  $170^\circ\text{C}$  has certain volume. To what temperature it should be heated keeping pressure constant so that its volume gets doubled?
10. Explain total internal reflection with neat diagram.
11. State different types of optical fibers with neat diagram.
12. Define 1) Critical Angle 2) Acceptance Angle 3) Numerical Aperture.
13. A ray of light is incident at an angle of incidence  $30^\circ$  on the boundary between air and glass. The angle of refraction is found to be  $25^\circ$ . Calculate the refractive index of glass.
14. The angle of minimum deviation for a prism of refracting angle is  $42^\circ$ . Find the refractive index of the Material of the prism.
15. State any three applications of optical fiber.

Date Of Submission

25/11/2026

Prepared by

(Mr. Yogesh Gulekar)