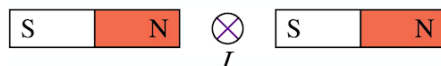
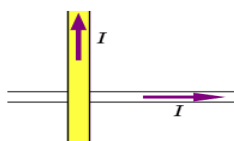


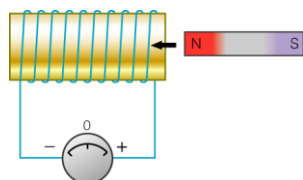
1. List the properties of magnetic lines of force.
2. State the rules to be followed when drawing magnetic fields.
3. The figure below shows a current-carrying wire passing between magnets. Is there a force on the wire? If so, in what direction? If not, why?



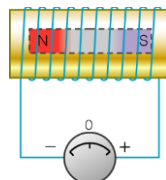
4. A proton moving in a circular path has a period of $1.00 \mu\text{s}$. What is $|\mathbf{B}|$?
5. Two perpendicular wires are almost touching and carrying currents in the manner shown below. What is the force between the wires?



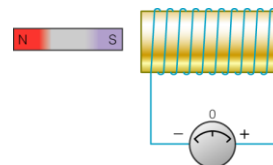
6. Indicate the direction of the induced I in each case. Explain briefly.



(a)



(b)



(c)

7. A current transformer which has 1 turn on its primary coil and 160 turns on its secondary coil is to be used with a standard range of ammeters that have an internal resistance of 0.2Ω 's. The ammeter is required to give a full scale deflection when the primary current is 800A . Calculate the maximum secondary current and secondary voltage across the ammeter.
8. List the characteristics of N-type and P-type Semiconductors.
9. What is the function (s) of a trigger in an oscilloscope?
10. What is the difference between a transducer and a sensor?
11. List at least three cautions to be taken when using a pH meter.
12. A soda has a concentration of H^+ of 3.16×10^{-3} moles/litre. What is its pH?
13. Describe how the Light on / Dark on types of output photoelectric sensors work.
14. What is a Truth Table for logic operators?
15. Describe one practical application of AND, OR and NOT logic gates in our daily lives.
16. List at least two advantages and two disadvantages of Logic circuits.