BRAIN INTERNATIONAL SCHOOL

PHYSICS ASSIGNMENT **CLASS X** **JULY, 2021**

1. Magnetic compass needle is placed in the plane of paper near point A as shown in Figure 13.6. In which plane should a straight current carrying conductor be placed so that it passes through A and there is no change in the deflection of the compass? Under what condition is the deflection maximum and why?
2. Under what conditions permanent electromagnet is obtained if a current carrying solenoid is used? Support your answer with the help of a labelled circuit diagram.
3. AB is a current carrying conductor in the plane of the paper as shown in Figure 13.7. What are the directions of magnetic fields produced by it at points P and Q? Given r1 > r2 , where will the strength of the magnetic field be larger? 16.
4. A magnetic compass shows a deflection when placed near a current carrying wire. How will the deflection of the compass get affected if the current in the wire is increased? Support your answer with a reason.
5. It is established that an electric current through a metallic conductor produces a magnetic field around it. Is there a similar magnetic field produced around a thin beam of moving (i) alpha particles, (ii) neutrons? Justify your answer.
6. What does the direction of thumb indicate in the right-hand thumb rule? In what way this rule is different from Fleming's left-hand rule?
7. Meena draws magnetic field lines of field close to the axis of a current carrying circular loop. As she moves away from the centre of the circular loop she observes that the lines keep on diverging. How will you explain her observation?
8. What does the divergence of magnetic field lines near the ends of a current carrying straight solenoid indicate? 21.
9. Name four appliances wherein an electric motor, a rotating device that converts electrical energy to mechanical energy, is used as an important component. In what respect motors are different from generators?
10. What is the role of the two conducting stationary brushes in a simple electric motor?