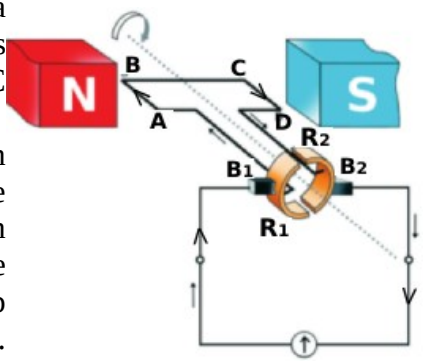
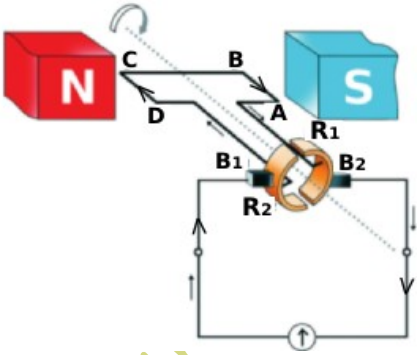
CHAPTER.3. ELECTROMAGNETIC INDUCTION

CLASS.4

DC Generator: By using split ring commutator instead of slip rings, direct current (DC) can be made availsable from a generator and this generator is called DC Generator.





DC generator is shown in the figure. Suppose the armature is rotating in clockwise direction, the portion AB is moving up and CD is moving down. According to Fleming's Right Hand Rule, the direction of induced current in the arm AB is from A to B and in the arm CD is from C to D. Hence current through the armature is in the direction of ABCD and current flows from B_2 to B_1 in the external circuit. This direction of current lasts, as long as the Ring R_1 is in contact with B_1 and R_2 is in contact with B_2. After completing half rotation, the direction of induced current through the armature is reversed (becomes DCBA), the contact between rings and brushes are interchanged. That is, B_1 is in contact with R_2 and B_2 with R_1. Therefore the direction of current through the external circuit is same as that in the first half (from B_2 to B_1).

Though the current from a DC generator is direct current, it is fluctuating. That is, its magnitude changes continuously.

Current from DC Generator

Note: i.Both in DC generator and AC generator, current induced in the armature is AC itself.

ii. If field magnet is rotated instead of armature, current from AC generator and DC generator will be AC.

iii. Parts of Generator and motor are same.