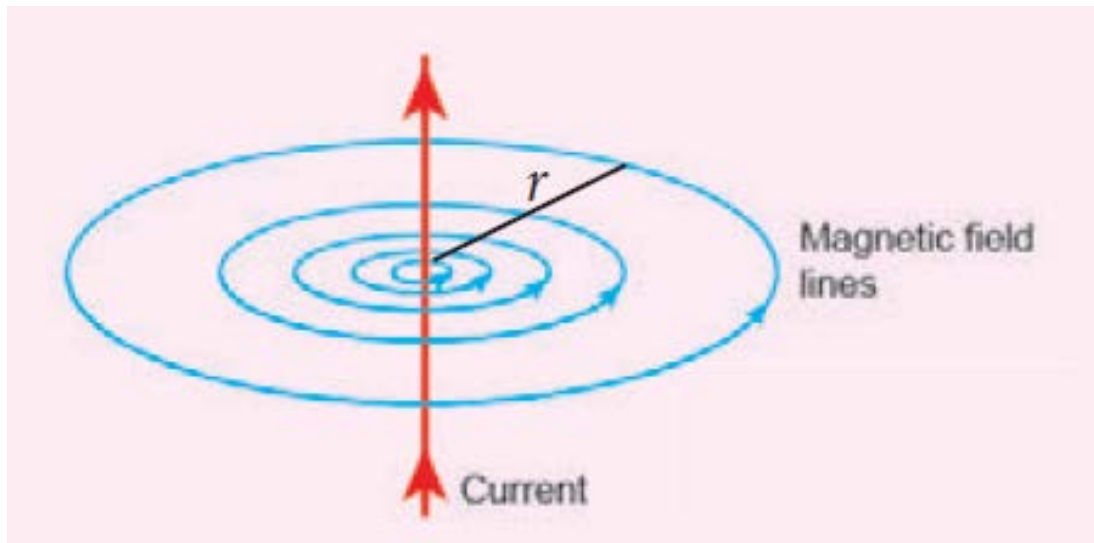


## Magnetic field around a straight current carrying conductor and circular loop

The direction of circular magnetic field lines will be clockwise or anticlockwise depending on the direction of current in the conductor. If the strength (or magnitude) of the current is increased then the density of the magnetic field will also increase. The strength of the magnetic field ( $B$ ) decreases as the distance ( $r$ ) from the conductor increases as shown in the following figure.



Suppose we keep a magnetic compass near a current carrying circular conductor, then the needle of the magnetic compass experiences a torque and deflects to align in the direction of the magnetic field at that point. We can notice that at the points A and B in the vicinity of the coil, the magnetic field lines are circular.

The magnetic field lines are nearly parallel to each other near the center of the loop, indicating that the field present near the center of the coil is almost uniform is shown in the following figure.

