**ELECTROMAGNETISM**

An electromagnet is a type of magnet in which an electric current generates the magnetic field. Here are some examples of how electromagnets are used to improve learners' comprehension of the subject. One way to think of electromagnets is as a kind of transient magnet that runs on electricity. An electromagnet's polarity can be changed by changing the direction of the electric current, and its magnetic strength can be simply adjusted by changing the quantity of electric current.

Everyday, electromagnets are employed for a variety of tasks. For instance, the massive cranes used in garbage yards are powered by electromagnets. In many electromechanical and electronic equipment, electromagnets are also commonly utilized.

Numerical:

Q. A solenoid 2.50 cm in diameter and 30.0 cm long has 300 turns and carries 12.0 A.  
Calculate the flux through the surface of a disk of radius 5.00 cm that is positioned perpendicular to and centered on the axis of the solenoid.

Solution:

Formula: ΦB =B⋅A=BA

Where A is the cross-sectional area of the solenoid

Φ =(μοNI/L)(πr2)

N=300

I=12

L=30

Φ= 7.40μ Wb = 9.29\*10^-6 Wb

LINK: https://www.lehman.edu/faculty/anchordoqui/169-P9-sol.pdf