

# FAST National University of Computer and Emerging Sciences, Lahore

**Course:** EE-117: Applied Physics

**Session:** Fall 2019

**Section:** F

**Date:** 2 December, 2019

**Instrument:** Quiz-3

**Instructor:** Muhammad Shiraz Ahmad

**Total Points:** 30

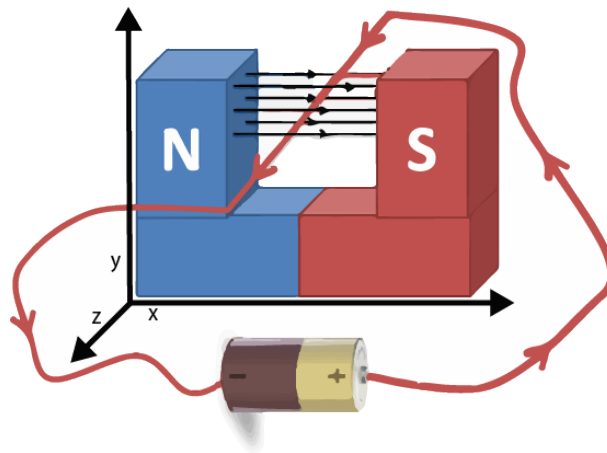
**Duration:** 30 minutes.

**Name:** \_\_\_\_\_

**Roll No.:** \_\_\_\_\_

**Note:** At the slightest suspicion of cheating, your submission will be marked zero.

**Q. 1** (10 points) A current carrying wire is under the influence of magnetic field, as shown in Figure below, on the portion of wire which is under the influence of magnetic field, what is the direction of (a) force experienced and (b) flow of electrons. (c) What is the charge carrier in actual in the wire?



**Q. 2** (10 points) A strip of copper carrying a current  $i$  is immersed in a magnetic field (The Hall Effect). Establish a relationship to determine density of charge carriers (number per unit volume).

**Q. 3** (10 points) A wire 50.0 cm long carries a 0.500 A current in the positive direction of an  $x$  axis through a magnetic field  $B = 3 \text{ mT}\hat{j} + 10 \text{ mT}\hat{k}$ . In unit-vector notation, what is the magnetic force on the wire?