J.C. Bose University of Science & Technology YMCA, Faridabad

Sessional-2nd

B. Tech. (Mechanical Engineering) 2nd semester

Introduction to Electromagnetic Theory (BSC-101 A)

Time: 1hr 30 min. **M. Marks: 15**

Note: All questions are compulsory.

Q. 1 (a) Derive an expression for boundary conditions in a magnetic field. (3)

(b) Explain electromagnetic breaking and its application, (2)

Q. 2 (a) Obtain an expression for the magnetic flux density at a point due to an infinitely long straight current-carrying conductor. (2.5)

(b) Discuss Faraday's law in terms of motional EMF. (2.5)

Q. 3 .. A square loop of wire (side a) lies on a table, a distance S from a very long straight wire, which carries a current I. (5)

a. Find the flux of B through the loop.

b. If someone now pulls the loop away from the wire, at speed v, what emf is generated?