PG/IIIS/ELC-304/18(CBCS)

M.Sc. 3rd Semester Examination, 2018

ELECTRONICS

(*History of Electromagnetic and Communication*)

PAPER – ELC-304

Full Marks : 50

Time : 2 hours

The figures in the right-hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

Illustrate the answers wherever necessary

Answer **Q. No. 1** and any **three** questions from the rest

1. Answer any *five* questions : 2×5

   (*a*) What is an optical telegraphy ?

   (*b*) What are reverse and forward channels ?

   (*c*) What are simplex and duplex communication system ?

(*d*) How a coheren works ?

(*e*) Name three scientists who are known as Maxwellians.

(*f*) What is an analytical engine ?

2. (*a*) What is lands off ? Describe the process of lands off. What is Mobile assisted lands off (MAHO).

(*b*) What are spectrum allocation and radio channels ?

(*c*) Define (*i*) Setup time (*ii*) Blocked calls. 4+2+4

3. (*a*) Describe Hertz experiment on electro-magnetic waves.

(*b*) Explain Oersted's experiment.

(*c*) What devices are required to set up a simple wireless communication link. 4+4+2

4. (*a*) What are Faraday's laws of induction, Faraday effect, Faraday wheel and Faraday cage ?

(*Continued*)

(*b*) Who is George Simon Ohm ? 8 + 2

5. (*a*) How J.C. Bose developed auto-coheren ?

(*b*) What is artificial eye ?

(*c*) What are the significance of J.C. Bose experiment ? 4 + 3 + 3

6. (*a*) Define (*i*) Holding time (*ii*) Request rate.

(*b*) What are Erlang-B & Erlang-C formula ?

(*c*) Who is G. Marconi ? 4 + 4 + 2

[*Internal Assessment* – 10 marks]