Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY
Manipal University

FOURTH SEMESTER B.TECH (E & C) DEGREE END SEMESTER EXAMINATION
MAY/JUNE 2016
SUBJECT: INTRODUCTION TO COMMUNICATION SYSTEM (ECE - 340)

TIME: 3 HOURS **MAX. MARKS: 50**

Instructions to candidates
- Answer **ANY FIVE** full questions.
- Missing data may be suitably assumed.

1A. Explain with waveforms, the different signalling tones used in telecommunication.

1B. Write a short note on Private Branch Exchange.

1C. What is modulation? What is the need for modulation in communication?

(5+3+2)

2A. Explain the phenomenon of transmission of light rays through an optical fibre. Define Numerical aperture of optical fibre. Derive the expression for Numerical aperture.

2B. A manufacturer wishes to make a silica-core, Step Index fibre with V=75 and a numerical aperture of 0.3 to be used at 820 nm. If n_1=1.458, what should be the core size and cladding index be?

2C. a) The process of transmitting two or more information signals simultaneously over the same channel is called _____.

b) Electromagnetic waves produced primarily by heat are called _____.

(5+3+2)

3A. With a neat block diagram, explain the working of MTI radar. What is the significance of Doppler effect in MTI radar?

3B. What are Radar beacons? What are its applications?

3C. Derive the expression for the radius of geostationary orbit.

(5+3+2)

4A. Explain the construction and working of LASER diodes

4B. Differentiate between direct and indirect band gap semiconductors with suitable diagrams.

4C. What are graded index fibres? How does the use of a GRIN fibre reduce dispersion as compared to a SI fibre?

(5+3+2)

5A. Differentiate between the multiple access techniques of TDMA and FDMA.

5B. Discuss Zigbee technology.

5C. Define the terms:

i) Descending Node

ii) Perigee

(5+3+2)

6A. Explain the architecture of a GSM system with required diagrams.

6B. What is co-channel interference? How can it be reduced?

6C. Write short note on Bluetooth technology.

(5+3+2)