Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

FOURTH SEMESTER B.TECH. (E & C) DEGREE END SEMESTER EXAMINATION
JUNE 2019
SUBJECT: INTRODUCTION TO COMMUNICATION SYSTEMS (ECE - 3283)

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

Instructions to candidates

- Answer **ALL** questions.
- Missing data may be suitably assumed.

1A. An optical fiber has core refractive index 1.55, cladding refractive index 1.51 and core radius=25µm. If light is launched into this fiber from a medium of refractive index 1.32, find the numerical aperture and maximum acceptance angle. If the fiber is to be used at an operating wavelength of 1300nm, determine the V number and the number of modes supported.

1B. Discuss the military and remote sensing applications of radar.

1C. Explain the basic concept of a RFID system.

(4+3+3)

2A. Classify the frequency range from 300Hz to 300GHz and discuss their applications in electronic communication.

2B. Explain the role of satellites in communication and navigation.

(5+5)

3A. With neat diagrams explain the operation of cellular mobile communication system.

3B. With a neat diagram explain private branch exchange(PBX).

(5+5)

4A. With a neat block diagram explain the operation of pulse radar.

4B. With neat block diagrams explain modulation and demodulation process used in electronic communication system.

(5+5)

5A. With a neat block diagram explain the elements of an optical fiber transmission link.

5B. With neat diagrams explain surface and edge emitting LEDs.

(5+5)