Reg. No.									

MANIPAL UNIVERSITY

FIRST SEMESTER ME (EMBEDDED & WIRELESS TECHNOLOGY) DEGREE EXAMINATION – NOVEMBER 2015

SUBJECT: EWT 611 – WIRELESS COMMUNICATIONS AND NETWORKS

Wednesday, November 25, 2015

Time: 10:00 – 13:00 Hrs. Max. Marks: 100

1. Write the evolution of Voice-Oriented and Data-Oriented Wireless Networks.

(10 marks)

2. Briefly describe the free space propagation model.

(10 marks)

3. Explain with necessary diagram about the Ground Reflection (2-Ray) Model.

(10 marks)

4. A mobile is located 5 km away from a base station and uses a vertical $\lambda / 4$ monopole antenna with a gain of 2.55 dB to receive cellular3radio signals. The E-field at 1 km from the transmitter is measured to be V/rn. The carrier frequency used for this system is 900MHz.

4A. Find the length and the gain of the receiving antenna.

4B. Find the received power at the mobile using the 2-ray ground reflection model assuming the height of the transmitting antenna is 50 m and the receiving antenna is 1.5 m above ground.

(10 marks)

5. Describe about the different types of channel assignment strategies.

(10 marks)

6. Explain in detail about co-channel interference (CCI) and adjacent channel interference (ACI).

(10 marks)

7. **Write a short note on:**

7A. IEEE 802.11 WLAN

7B. IEEE 802.16 WMAX

(10 marks)

8A. Write the purpose of a Mobile TCP.

8B. Explain the operations of Mobile TCP.

8C. List their advantages and disadvantages.

(2+4+4 = 10 marks)

9. Describe the principle of operation of Ad Hoc On-Demand Distance Vector (AODV) routing protocol.

(10 marks)

10. How is the degradation of throughput with increase in path length addressed by split TCP? Explain with suitable example.

(10 marks)