

**B TECH**  
**(SEM-VIII) THEORY EXAMINATION, 2018-19**  
**WIRELESS & MOBILE COMMUNICATION**

Time: 3Hours

Total Marks: 100

Note: Attempt all Section. If require any missing data; then choose suitably.

**SECTION A**

- 1. Attempt all questions in brief** **2x10=20**
- (a) What are the main reasons for path losses?
  - (b) If  $I = 3$  and  $J=0$ , what is the cluster size in cellular system.
  - (c) What is the basic work of base station in mobile communication?
  - (d) Write the advantage of hand –off.
  - (e) What are the components of Next Generation Networks?
  - (f) Calculate the spectral efficiency if the bandwidth is 684 kbps and transmission data rate is 1.152 Mbps
  - (g) What are the three main wireless technologies?
  - (h) What is the reason behind the name “Bluetooth”?
  - (i) Why we are using Equalization in wireless communication?
  - (j) What are the advantage of 4G system.

**SECTION-B**

- 2. Attempt any three of the following** **10x3=30**
- (a) A transmitter has a power output of 150 watt at a carrier frequency of 32.5 MHz. It is connected of a to an antenna with gain of 12 dBi. The receiving antenna is 10 km away and has gain of 5 dBi. There is Negligible losses or mismatched. Calculate the power delivered to the receiver, assuming free space propagation.
  - (b) What is frequency reuse concept? And describe the hand off strategies in wireless communication.
  - (c) What are the different type of vocoder and describe direct sequence spread spectrum.
  - (d) Explain adaptive equalization and decision feedback equalizer.
  - (e) Explain the term Long Term Evolution in wireless communication.

**SECTION C**

- 3. Attempt any one parts of the following.** **(10x1=10)**
- (a) Explain the different outdoor models are given below:
    - (i) Hata path loss Model
    - (ii) Okumura Model.
  - (b) Explain the term Evolution of mobile radio communication fundamentals and describe the operation of cellular system.

4. **Attempt any one parts of the following.** (10x1=10)  
(a) Explain the different type of diversity technique used in wireless communication system.  
(b) Explain the multiplexing in MIMO System.
5. **Attempt any one parts of the following.** (10x1=10)  
(a) Draw and explain RAKE receiver using block diagram.  
(b) Explain the different type of multiple access schemes (TDMA, CDMA and FDMA)
6. **Attempt any one parts of the following.** (10x1=10)  
(a) Draw the GSM architecture and also explain radio subsystem in mobile radio communication.  
(b) Describe the following wireless standards:  
(i) IS 95 (ii) IMT 2000
7. **Attempt any one parts of the following.** (10x1=10)  
(a) What is 4G system? And explain the concept of Next Generation Networks  
(b) Describe challenges and issues in Mobile AD-HOC Networks (MANETs) in wireless communication