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Paper Id: 131282 Roll No.

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