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Question Paper Code : X 60463

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020
Seventh Semester
Electronics and Communication Engineering
EC 2401/EC 71/10144 EC 701 – WIRELESS COMMUNICATION
(Regulations 2008/2010)
(Common to PTEC 2401 – Wireless Communication for B.E. (Part-Time) Sixth Semester – ECE – Regulations 2009)

Time : Three Hours Maximum : 100 Marks

Answer ALL questions

PART – A **(10×2=20 Marks)**

1. Mention the operating frequency ranges for AMPS and ETACS systems.

2. Define mean excess delay and rms delay spread.

3. State the differences between small-scale and large-scale fading.

4. Define : Snells law.

5. Find the 3-dB bandwidth for a Gaussian low pass filter used to produce 0.25 GMSK with a channel data rate of R_b = 270 KbPS. What is the 90% power bandwidth in the RF channel ?

6. What is slotted frequency hopping ?

7. What is Diversity ?

8. What is Equalization ?

9. Characterize the effects of multipath propagation on Code Division Multiple Access.

10. What are the basic channels available in GSM ?

PART – B **(5×16=80 Marks)**

11. a) i) Explain the methods for increasing the capacity of wireless cellular networks. **(10)**

ii) Brief about the principle of Time Division Multiple Access (TDMA). **(6)**

(OR)

b) i) Describe in detail about the effects of multipath propagation in wireless environment. **(10)**

ii) A Communication system has the following parameters :

P_1 = 5W, G_t (dB) = 13dB, G_r (dB) = 17dB, d = 80 km, f = 3GHz.

Determine the value of the received power. **(6)**

12. a) i) How the received signal strength is predicted using the free space propagation model ? Explain. **(10)**

ii) Find the far-field distance for an antenna with maximum dimension of 1 m and operating frequency of 900 MHz. **(6)**

(OR)

b) i) With system theoretic description, explain the characteristics of Time-Dispersive channels. **(8)**

ii) Explain the three basic propagation mechanisms in a mobile communication system. **(8)**

13. a) Derive the expression for MSK signal as a special type of continuous phase FSK signal. **(16)**

(OR)

b) Explain in detail about the Gaussian Minimum Shift Keying (GMSK) Transmission and Reception with necessary diagrams. **(16)**

14. a) Explain in detail about :

i) Linear Equalizers. **(8)**

ii) Non Linear Equalizers. **(8)**

(OR)

b) i) With block diagram, explain the operation of a RAKE receiver. **(8)**

ii) Briefly explain the frequency domain coding of speech signals. **(8)**

15. a) Examine about the effects of multipath propagation on CDMA. **(16)**

(OR)

b) i) Illustrate the block diagram of IS-95 transmitter. **(8)**

ii) Give a detailed description of OFDM transceiver. **(8)**

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