

7E7083

Roll No. \_\_\_\_\_

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**7E7083**

**B. Tech. VII Sem. (Main/Back) Exam., Nov.-Dec.-2016**  
**Electronics & Communication Engineering**  
**7EC4A Wireless Communication**

**Time: 3 Hours**

**Maximum Marks: 80**

**Min. Passing Marks Main : 26**

**Min. Passing Marks Back: 24**

*Instructions to Candidates:*

*Attempt any five questions, selecting one question from each unit. All questions carry equal marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.*

*Units of quantities used/calculated must be stated clearly.*

*Use of following supporting material is permitted during examination.  
(Mentioned in form No. 205)*

1. NIL

2. NIL

**UNIT – I**

- Q.1 (a) Explain the DSSS with binary phase shift keying and compare its performance with FHSS. [8]
- (b) If the chip rate of a DSSS transmitter is 20Mbps, the message bit rate is 10 kbps. Find out the processing gain achieved, if bpsk is used. [6]
- (c) Write the properties of PN sequence. [2]

**OR**

- Q.1 (a) Explain FHSS with basic block diagram and find the expression for processing gain ( $G_p$ ) in fast and slow systems. [8]
- (b) Explain the properties of spreading codes. How they are generated? Briefly explain. [8]

## UNIT – II

- Q.2 (a) Explain small scale fading and write the time dispersion parameters. [8]  
(b) Assume a receiver is located 20 km from a 100 W transmitter. The carrier frequency is 1000 MHz, free space propagation is assumed.  $G_t = 1$  and  $G_r = 3$ . Find the power at receiver. [8]

**OR**

- Q.2 (a) Explain the concept of diffraction loss as a function of path difference around an obstruction by Fresnel zones. [8]  
(b) Explain the transmitter and receiver block diagram of Microwave link. [8]

## UNIT – III

- Q.3 (a) The “near – far interference” is a serious problem in a wireless cellular CDMA network, what is the reason for it? [8]  
(b) What is rake receiver? [rtuonline.com](http://rtuonline.com) [4]  
(c) What is soft Hand off? [4]

**OR**

- Q.3 (a) Define briefly the operation of a time division multiple access (TDMA) schemes. [8]  
(b) Compare FDMA, CDMA & TDMA. [8]

## UNIT – IV

- Q.4 (a) Explain the process of speech coding in GSM. [6]  
(b) Define Hand off and Handovers in GSM. [6]  
(c) Compare WiFi and WiMax Technology. [4]

**OR**

- Q.4 (a) Explain RFID Technology. [6]  
(b) Explain briefly:  
(i) Bluetooth [5]

(ii) Broadband wireless 1002.16

[5]

**UNIT – V**

Q.5 Write short note on following:

(a) Low noise amplifier

[4]

(b) Up converter

[4]

(c) Down converter

[4]

(d) Monitoring and control

[4]

**OR**

Q.5 (a) Explain the process of Link Design of a satellite system and derive an expression for the received power. [8]

(b) Define following:

(i) Coverage angle

[2]

(ii) Slant range

[2]

(iii) Orbital period

[2]

(iv) Orbital velocity

[2]