

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII(NEW) • EXAMINATION – WINTER 2016****Subject Code:2170710****Date:23/11/2016****Subject Name:Mobile Computing and Wireless Communication****Time:10.30 AM to 1.00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Explain Handoff in detail. **07**
 (b) Explain GSM architecture and role of its components. **07**
- Q.2** (a) Define channel capacity. Write Shannon and Nyquist capacity formula. State the key factors that affect channel capacity. **07**
 (b) i. Explain Android EditText and TextView control with an example. **04**
 ii. Given a channel with an intended capacity of 50 Mbps, the bandwidth of the Channel is 5 MHz. What signal-to-noise ratio is required to achieve this capacity? **03**
- OR**
- (b) i. Write a note on DECT frame format. **04**
 ii. Write a note on piconet and scatternet. **03**
- Q.3** (a) Write advantages and disadvantages of packet switching over circuit switching. **07**
 (b) Draw and explain Bluetooth protocol stack. **07**
- OR**
- Q.3** (a) In a CDMA network, assume there are two stations A (chip sequence: 00011011) and E (chip sequence: 00101110). Figure-1 shows two cases of both stations transmitting at the same time. Show the transmitted sequences S1 and S2 and how DSSS does the recovery at receiver. **07**
- A E**
 1 0 A sent 1 and B sent 0
 0 - only A sent 0
 (Figure-1)
- (b) Discuss with suitable diagram distributed coordination function with IEEE 802.11 medium access control logic. **07**
- Q.4** (a) Explain operation of Mobile IP. **07**
 (b) Discuss the network elements in GPRS that are different from GSM. Also discuss applications and limitations of GPRS. **07**
- OR**
- Q.4** (a) Define spreading sequence. List different categories of spreading sequences. Explain Walsh code with example. **07**
 (b) What is the bandwidth efficiency for FSK, ASK, PSK and QPSK for a bit error rate of 10^{-7} on a channel with an SNR of 12 dB? **07**
- Q.5** (a) What is fading? Differentiate **07**
 i. Fast and slow fading
 ii. Flat and selective fading.
 (b) List all and explain any five IEEE 802.11 services. **07**

OR

- Q.5** (a) Why is UDP needed? Why can't user program directly access IP? **07**
(b) Define Android layout. Explain various Android layouts. **07**
