

Exam No. \_\_\_\_\_  
Seat No. \_\_\_\_\_

**GANPAT UNIVERSITY**  
**M. Tech SEMESTER-I (IT) EXAMINATION Jan 2012**  
**PGIT 101: Wireless Networks**

**Time: 3 Hours]**  
**Instructions:**

**[Total Marks: 70**

1. Figures to the right indicate full marks
2. Each section should be written in a separate answer book
3. Be precise and to the point in your answer

**SECTION-I**

**Q.1 Answer Any Two.**

**(12)**

- i. Discuss the cellular system architecture. Explain the concept of frequency reuse pattern.
- ii. Answer the following with reference to GSM architecture.
  - a. What happens when MS powers up?
  - b. Describe the steps involved to handle outgoing & incoming call.
- iii. Explain the concept of location update with reference to HLR & VLR.

**Q.2 A Answer the following.**

**(09)**

- i. Differentiate between WLAN & Ad hoc networks.
- ii. CSMA/CD can be used for wireless LAN or not. Why?
- iii. Write a short note on satellite networks.

**Q.2 B List the different ways of increasing the capacity of a cellular system**

**(02)**

**OR**

**Q.2 A Answer the following.**

**(09)**

- i. What is the need of wireless networks? Differentiate wired & wireless networks.
- ii. Differentiate GSM & CDMA.
- iii. A cellular system uses FDMA with spectrum allocation of 12.5 MHz in each direction, a guard band at the edge of the allocated spectrum of 10 kHz and a channel bandwidth of 30 kHz. What is the number of available channels?

**Q.2 B Explain the concept of hard handoff & soft handoff.**

**(02)**

**Q.3 Answer the following.**

**(12)**

- i. Describe Hidden & Exposed terminal problem. Discuss the solution of both the problems in brief.
- ii. Explain the concept of Mobile IP.
- iii. Suppose there are three stations S1, S2 & S3 wants to send the packet of size 500 bytes, 1900 bytes & 1300 bytes at time 0, 120 & 250  $\mu$ s respectively. Assume Slot Time of 20 $\mu$ s, SIFS Time of 10 $\mu$ s, RTS Threshold of 1200 bytes, Fragmentation Threshold of 2400 bytes and RTS, CTS & ACK of 100 bytes. Each station can Transmit 200 bytes per Slot Time. When does data transfer complete?

SECTION-II

- Q.4 Answer Any Two (12)**
- Discuss the TCP issues in wireless networks
  - Discuss the satellite characteristics that affect the performance of TCP.
  - Discuss & differentiate TCP Tahoe, Reno & New Reno.

- Q.5 A Answer the following. (09)**
- Explain the expanding ring search mechanism of AODV
  - Differentiate proactive & reactive routing approaches for MANETs
  - Discuss the applications of MANET.

- Q.5 B How to give priorities in 802.11? (02)**

OR

- Q.5 A Answer the following. (09)**
- Differentiate reactive & hybrid routing approaches for MANETs.
  - Explain ZRP in brief.
  - Describe RREQ & RREP messages in AODV.

- Q.5 B Explain the concept of DCF & PCF. (02)**

- Q.6 Answer the following. (12)**
- Discuss the DSDV routing algorithm in brief.
  - Describe CSMA/CA mechanism with an example.
  - Differentiate AODV & DSR.

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