

20.5.14

Indian Institute of Engineering Science and Technology, Shibpur
B.E. (CST) 8th Semester Examination, May 2014

Mobile Computing (CS – 804/1)

Time: 3 hours

Full marks: 70

Attempt any FIVE Questions.

1. A. Write steps of operation to set up a call originated by a mobile station.
B. What is hand off ? Compare between the followings:
 - i. Hard handoff vs. Soft handoff
 - ii. 1st generation vs. 2nd generation handoff mechanisms

[7 + (1 + 3 + 3)]
2. A. Define GOS. Write assumptions (if any) in case of blocked calls cleared trunking system
B. Define Erlang. How many users can be supported for 0.5% blocking probability for 20 number of trunked channels in a blocked calls cleared system. Assume each user generates 0.1 Erlang traffic. From Erlang chart it is given that total system load for 0.5% blocking is 11.10.

[7 + 7]
3. A. How do you categorize WLAN ? Briefly explain each category.
B. What are contention-based and contention-free access control mechanisms?
C. Describe briefly hidden station and exposed station problem in WLAN.
D. Write steps of operation to implement CSMA/CA.

[3 + 3 + 4 + 4]
4. A. What is RR protocol layer in GSM ? Mention its role in brief.
B. What is the difference between
 - i. Physical vs Logical channel
 - ii. Common vs Dedicated channel
C. Explain various kinds of security services offered by GSM.
D. What is IMEI in GSM mobile addressing ? Mention its need.

[4 + (1 $\frac{1}{2}$ x 2) + 5 + 2]

5. A. What is MM protocol layer in GSM ? Mention its role in brief.
- B. What are the important requirements of 3G mobile technology ? Mention name of few 3G mobile technologies.
- C. What is Spread Spectrum technique and what are the benefits of it ? Describe how spreading works in DSSS system.
- D. What is EIR in GSM system architecture ? Mention its need.

[4 + 3 + 5 + 2]

6. A. What are the various kind of services provided by GSM technology ?
- B. What is PLMN and Cell selection procedure ?
- C. Write in brief on Walsh and OVSF codes, stating their code generation procedure and use.
- D. What is TMSI in GSM mobile addressing ? Mention its use.

[4 + 3 + 5 + 2]

7. Write short notes on the following :

- A. Capacity improving methods in cellular network
- B. Channel assignment strategies

[7 + 7]