MCA SEM-VI

ws April 09 147

Wireless Technology

21th May 2009

Con. 2269–09. (OLD COURSE) BB–9240

(3 Hours) [Total Marks : 100

N.B. :–
1. Question No **1** is **compulsory**
2. Attempt **any four** form the **remaining**
3. Figures to right indicate full marks
4. Illustrate answers with sketches wherever necessary
5. Answers to sub questions should be answered together.

Q1.	(a)	Discuss the operation of cellular networks	10
	(b)	List the transmission impairments effecting the wireless transmission. Explain free space loss? Determine the free space loss at 4 GHz for the shortest path to a geo synchronous satellite.	10
Q2.	(a)	Explain the GSM network Architecture	10
	(b)	How is the security provided in the WAP using the Wireless Transport Layer Security?	10
Q3.	(a)	What is spread spectrum? Explain FHSS and DSSS	10
	(b)	Discuss the operation of Mobile IP	10
Q4.	(a)	Explain the applications of Wireless LAN	10
	(b)	Discuss the protocol architecture of Bluetooth	10
Q5.	(a)	Explain the CDMA technique using an example	10
	(b)	Explain how the capacity of a satellite is allocated using frequency division	10
Q6.	(a)	Discuss the architecture and the services provided by IEEE802.11	10
	(b)	What are convolutional codes? Describe the (2,1,3) convolutional code	10
Q7.		Write short notes on any four of the following :- 1. Infrared LANs 2. Piconets and Scatternets 3. TDD 4. Antennas 5. Fading	20

MCA - SEM-VI

Distributing Computing

23rd May 2009

612 : G-m.

BB-9243

Con. 2321-09.

(3 Hours) [Total Marks : 100

N.B. (1) Question No. **1** is **compulsory**.
(2) Answer any **four** from remaining **six** questions.

1. (a) Explain following terms with examples :— **10**
   (i) Asynchronous Transfer Mode
   (ii) Marshalling
   (iii) LRPC
   (iv) Multidatagram messaging
   (v) Mutual Exclusion.
   (b) (i) Differentiate between synchronous and asynchronous type of communications. **5**
   (ii) Discuss relative advantages and disadvantages of preemptive and non-preemptive process migration. **5**

2. (a) Explain with diagrams how logical clocks are implemented with counters and physical clocks. **10**
   (b) Give a mechanism for consistent ordering of messages in following cases :— **10**
   (i) One-to-many communications
   (ii) many-to-one communications
   (iii) many-to-many communications.

3. (a) What is the difference between sequential consistency and release consistency ? State their relative advantages. How can sequential consistency be implemented ? **10**
   (b) Discuss the relative advantages and disadvantages of using full-file caching and block caching models for the data- caching mechanism of a distributed file system. **10**

4. (a) In a fault tolerant communication between Client-server, there is **exactly once** semantics. How will you implement exactly-once semantics in following cases :— **10**
   (i) The client-server machines are reliable but the communication links connecting them are unreliable,
   (ii) The client-server machines are unreliable but communications links are reliable,
   (iii) The client is unreliable but the server and the communication links are reliable.
   (iv) The client and links are reliable but the server is unreliable.
   (b) What is the difference between procedural call and remote procedural call ? Explain RPC model with a diagram. **10**

5. (a) What is an idempotent operation ? Which of the following operations are idempotent ? If not, give the semantics to make them idempotent :— **10**
   (i) Read _next_record (filename)
   (ii) Read_record (filename, rec_num)
   (iii) T = time(x)
   (iv) B = mean (a1, a, a3)
   (v) sqrt(144).

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(b) Differentiate between Stateful and Stateless servers. Explain two situations where stateless servers are useful. **10**

6. (a) Differentiate between process and thread concepts. Give suitable examples for each one of the following :— **10**
   (i) A process using multiple threads that are organized in the dispatcher-worker model
   (ii) A process using multiple threads in a team model
   (iii) A process using multiple threads in a pipelined model.

   (b) Why are election algorithms required ? Describe Bully algorithm in detail. Is it more efficient that the Ring algorithm ? **10**

7. Write short notes on any **four** :— **20**
   (a) Distributed Computing System models
   (b) File Replication
   (c) Release consistency
   (d) Name space
   (e) Mach distributed system.
