Name : ....

Roll No. : ....

Invigilator's Signature : ....

CS/M.TECH(CSE)/SEM-1/CSEM-103/2011-12

2011

ADVANCED COMPUTER NETWORKING

Time Allotted : 3 Hours   *Full Marks* : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words

as far as practicable.

GROUP – A
(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following :

$$10 \times 1 = 10$$

    i)   Digital Signature is .... process.

        a)   verification   b)   an authorization

        c)   an authentication   d)   identification.

    ii)   The authentication header guard against .... attack.

        a)   replay   b)   masquerade

        c)   fabrication   d)   none of these.

    iii)   Kerberos is a .... protocol.

        a)   Key Distribution   b)   Routing

        c)   MAC   d)   none of these.

    iv)   Distributed file system design issue is

        a)   transparency   b)   flexibility

        c)   reliability   d)   all of these.
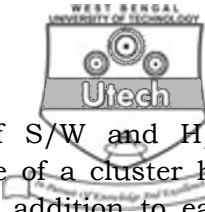
v) .... refers to a wide class of S/W and H/W implementations, in which each node of a cluster has access to a large shared memory in addition to each node's limited non-shared memory.

   a)   Distributed shared memory

   b)   Distributed file system

   c)   RPC

   d)   None of these.

vi) Which is not the characteristic of the distributed system ?

   a)   Homogeneous computer

   b)   Hidden communication

   c)   Easy to expand and scale

   d)   Permanent availability.

vii) When two processes want to enter the same critical region at the same moment, the process which has the lowest time stamp wins. This is possible in which of the following algorithm ?

   a)   Distributed   b)   Centralised

   c)   Ring   d)   None of these.

viii) Let min be the minimum time to transmit a message one way. The accuracy by which P should receive S's message is

   a) $\pm\left(T_{round}/2 - \min\right)$ b) $\pm\left(T_{round}/2 - \mathrm{avg}\right)$

   c) $\pm\left(T_{round}/2 - \mathrm{avg}\right)$ d)   none of these.

ix) Having data belonging to two independent processes in the same page is called

   a)   binding   b)   false sharing

   c)   inconsistency   d)   none of these.

x) A .... system is a collection of a.............. computers that appears to its users as a single coherent system.

    a)   distributed, independent

    b)   network, independent

    c)   distributed, dependant

    d)   network, dependant.

xi) .... allows shared resources to be protected against simultaneous access by multiple processes.

    a)   Election

    b)   Distributed mutual exclusion

    c)   Bully's algorithm

    d)   The Berkeley's algorithm.

xii) HIPPI stands for

    a)   High Performance Processor Interference

    b)   High Performance Parallel Interface

    c)   High Performance Peripheral Interface

    d)   both (b) and (c).

GROUP – B
(Short Answer Type Questions)
Answer any *three* of the following $3 \times 5 = 15$

2. What is 6 bone ? Explain in brief.   2 + 3

3. Explain mutual exclusion.

4. What do you mean by clock synchronization ? Explain Cristian's algorithm.   2 + 3

5. List fast access technologies used in advanced networking. Explain any one of them.   1 + 4

6. What do you mean by FDDI ?

GROUP – C
(Long Answer Type Questions)
Answer any *three* of the following.   3 × 15 = 45

7. a) What is Bully algorithm ?

    b) List and explain distributed file system design issues.

    c) Compare and contrast centralized, distributed and token ring algorithms.   5 + (1 + 4) + 5

8. a) Explain distributed system taxonomy.

    b) Define False Sharing.

    c) List and explain service models.   6 + 3 + 6

9. a) Do case studies for *one* of the following distributed file systems :

    i)   NFS

    ii) AFS.

    b) What do you mean by distributed deadlocks ? Explain.

    10 + 5

10. a) Explain network security at various layers.

    b) Draw and explain Authentication Header.

    c) What do you mean by digital signature ? Explain.

    5 + (3 + 2) + (3 + 2)

11. Write short notes on any *three* of the following :   3 × 5

    a) DQDB

    b) IPv6

    c) Mobile IP

    d) Digital Certificate

    e) TCP/IP Protocol Suite.

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