Name : ....

Roll No. : ....

Invigilator's Signature : ....

CS/M.Tech (CSE)/SEM-1/MTCSE-15/2012-13

2012
ADVANCED OPERATING SYSTEM

Time Allotted : 3 Hours   *Full Marks* : 70
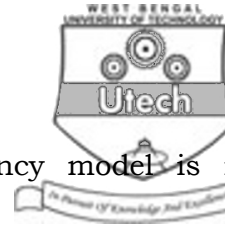
The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

Answer any *five* questions from the following.

1. What is deadlock ? What are the four necessary conditions for a deadlock to occur ? What is resource allocation graph ?

    2 + 2 + 1

2. Suppose, a TLB (Translation look-aside buffer) has 60-percent hit ratio. If it takes 30 nanoseconds to search the TLB, and 120 nanoseconds to access memory, then find out the effective access time. What are disadvantage of an inverted page table.   3 + 2

3. what are the policies can be taken to detect and recover the faults from a Distributive Operating System ?

4. What are the drawbacks of a centralized clock synchronization algorithm ? What is event ordering ?   3 + 2

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5. Critically comment "The strict consistency model is not practically implementable". 5

6. What is RPC ? What are stateless & stateful servers ? 2 + 3

7. What are the main differences between the load-balancing and load-sharing approaches for process scheduling in distributed system ? 5

GROUP – B

Answer any *three* questions from the following.

8. What are the different approaches to structure the shared memory spaces ? Briefly define the problem of false sharing and its remedies. What are the classifications of the memory blocks according to the IVY algorithm for memory block replacement in a DSM ? 5 + 5 + 5

9. Briefly describe the centralized clock synchronization algorithms. What is clock skew ? Define the conditions that are required for the happened-before relations for a set of events. 7 + 3 + 5

10. Answer the following :

   a) Describe blocking & non-blocking types of IPC.

   b) What are their relative advantages & disadvantages ?

   c) What are multi-datagram messages ?

   d) What are the advantages of light weight RPCs ?

   e) Describe some techniques used in LRPC system that make it more efficient than the conventional RPC system. 3 + 3+ 2 + 2 + 5

11. What is groupware ? What are the main differences between a network operating system and a distributed operating system ? What are the major issues in designing a distributed operating system ? 2 + 4 + 9

12. What are the drawbacks of Ricart-Agarwala Algorithm for mutual exclusion in a DSM ? Describe the token passing approach for critical section problem in a DSM. Briefly define the file modification propagation schemes. 3 + 5 + 7