	Utech
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Invigilator's Signature :	

CS/M.Tech (CSE)/SEM-1/CST-1101/2009-10 2009

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 (Objective Type Questions)

- 1. State *True* or *False* for the following : $10 \times 1 = 10$
 - i) One key approach used to tolerate failures is redundancy.
 - ii) Mutual exclusion is the primary solution for uniprocessor system.
 - iii) Mutual exclusion guaranteeing that critical section will not be executed by more than one process.
 - iv) Voting protocol defines the mask failures in the system.
 - v) The drawback of two-phase commit protocol is delay.

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- vi) Conhorts and co-ordinator both are same for two-phase commit protocol.
- vii) OS is an abstract concept to manage the H/W system.
- viii) To design OS some policy is required.
- ix) Virtual S/W layered over hardware.
- x) Critical section can be controlled by user.

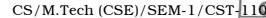
GROUP – B (Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

- 2. What are the recent trends of operating system?
- 3. What are the key attributes to develop mature micro-kernel based OS.
- 4. Define how micro-kernel based architecture applied to the unix kernel.
- 5. Explain two-phase commit protocol.
- 6. What is livelocks problem? Differentiate between IPC and RPC. 2+3

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(Long Answer Type Questions)

Answer any three of the following.

- 7. What is amnesia? What are the basic approaches for backward error recovery? Define operational-based approach for back ward error recovery. 2+5+8
- 8. What are orphan messages? Explain strongly consistent set and consistent set of check point. Explain synchronous check point algorithm. What is domino effect? 2+5+5+3
- 9. Differentiate between protection and security. Clarify the interrelation of fault, error and system failure. Write down the classification of failures. 3 + 7 + 5
- 10. Fault-tolerant system must behave in a specified manner in the event of a failure. Explain. Define Fault-tolerance system with respect to atomic action and committing. What suggestion is proposed by Lamport? 5 + 7 + 3

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