



Name :

Roll No. :

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 × 1 = 10

- i) One key approach used to tolerate failures is redundancy.
- ii) Mutual exclusion is the primary solution for uni-processor 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.

$2 + 3$



GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following.

3 × 15 = 45

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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