



**RM-7701-R**

**B. E. - IV (Sem. VIII) (Computer) Examination**

**May / June - 2010**

**Advanced Operating System**

*(Elective - II)*

Time : 3 Hours]

[Total Marks : 100

**Instruction :**

नीचे दशांशवले निशानीवाणी विगतो उत्तरवडी पर अवश्य लपवी.  
Fillup strictly the details of signs on your answer book.

Name of the Examination :  
**B. E. - 4 (Sem. 8) (Computer)**

Name of the Subject :  
**Advanced Operating System**

Subject Code No. : **7 7 0 1** Section No. (1, 2,.....): **1&2**

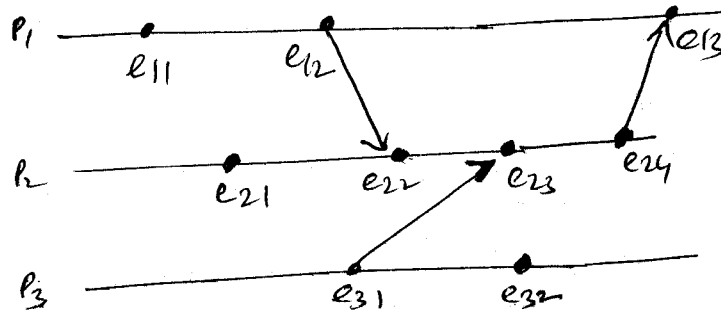
Seat No. :

Student's Signature

**SECTION - I**

- 1 (a) Do as directed :
- (i) Define the term 'Distributed System'. 2
  - (ii) In SCHIPER-EGGLI-SANDOZ protocol for causal ordering of messages., 1  
When can a pair (s, t) be deleted from the vector maintained at site ?
  - (iii) What are major differences between deadlock and starvation? 2
  - (iv) List out the metrics to measure the performance of mutual exclusion algorithms. 2
  - (v) Show that Byzantine Agreement can no be reached among three processors, when one processor is faulty. 3

- (b) Define Happened Before Relations. Define the conditions satisfied by Lamport's system of clock. Why it is referred as virtual time? What is the limitation of Lamport's scheme? Give dissemination of time using Lamport's clock. 10



- 2 (a) Explain the BIRMAN-SCHIPER-STEPHENSON protocol for causal ordering of message in distributed system. 7
- (b) Explain Suzuki-Kasami's Broadcast token based algorithm for Mutual Exclusion. 8

OR

- 2 (a) Explain Raymond's Tree-based algorithm for Mutual Exclusion. 7
- (b) Explain the Chandy's Diffusion Computation algorithm for distributed deadlock detection. 8
- 3 (a) Give classification of agreement problems. Discuss the application of agreement protocols in distributed system. 7
- (b) Discuss the Resource Management and Structuring issues in Distributed OS. 8

OR

- (b) Explain issues in Remote Procedure call in distributed system. 8

## SECTION - II

- 4 (a) Answer the following : 10
- (i) \\machine1\dir1\file.txt. 1  
Does it provide location independence? (y/n)
  - (ii) Explain "Domino Effect" and orphan messages. 2
  - (iii) Explain "Owned nonexclusively" objects in Munim's DSM. 2
  - (iv) Explain the use of public and private key in digital signature. 2
  - (v) Define Access Control list. 1
  - (vi) Enlist information policy and location policy for stable sender initiated Load Distribution Algorithm. 2
- (b) Enlist and explain the points considered in selecting the Load Sharing algorithm. Explain "Above Average Algorithm." 10
- 5 (a) Define checkpoint. Explain synchronous Checkpoint Algorithm with example and figure. 8
- (b) Enlist and explain the ways to implement Resilient Processes in Distributed OS with pros and cons of each of them. 7
- OR**
- (b) Explain Kerberos security system. 7
- 6 Attempt any **three** : 15
- (i) Explain x-Kernel Logical File System DFS working.
  - (ii) Explain the Dynamic Distributed Manager scheme of Cache Coherence Mechanism in IVY and differentiate that with Fixed Distributed Manager.
  - (iii) Differentiate between Capabilities and Access control list methods. Explain their structure using figures.
  - (iv) Explain Wait-Die and Would-Wait algorithms of Timestamp-based locking and compare them.