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SF-7701

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

May / June – 2011

Elective - II (Advanced Operating System)

Time : **3** Hours] [Total Marks : **100**

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **B. E. 4 (Sem. 8) (Computer)**

Name of the Subject :

☛ **Elective - II (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) Attempt the following : **10**

(i) Describe the term 'Distributed System'.

(ii) Why the time is referred as 'virtual' in distributed system.

(iii) Differentiate authenticated and non-authenticated message system.

(iv) What is the basic idea of protocols for the casual ordering of messages ?

(v) How Maekawa's Algorithm departs from other algorithms of Mutual Exclusion.

(b) Discuss the issues in Distributed Operating System. 8

2 (a) Explain Raymond's Tree-Based algorithm for Mutual Exclusion. 8

(b) Describe the metrics to measure the performance of mutual exclusion algorithms. Give a comparative analysis of various mutual exclusion algorithms. 8

OR

(b) Huang's termination Detection algorithm. 8

3 Attempt any **four** : **16**

(a) What are advantages of Caching ? What is Cache coherence problem in multiprocessor OS ? What are two approaches to handle it ?

(b) Explain User-level thread in multiprocessor OS.
(c) Explain various control organization for distributed deadlock detection.
(d) Describe the design issues of multiprocessor Operating System.
(e) How deadlock prevention is inefficient in distributed system ?
(f) Explain Oral Message algorithm. Show the working of algorithm for four processors where one processor is faulty.

SECTION - II

4 (a) Choose the right one or do as directed : **12**

(i) In central server algorithm **1**
- (a) Central Server maintains all shared data.
- (b) Client maintains all shared data.
- (c) Data is distributed among all servers.
- (d) None

(ii) Define the terms : 4
- (a) Release consistency
- (b) Information policy
- (c) Access control list
- (d) Location transparency

(iii) Write invalidate protocol **1**
- (a) read to share data invalidates all copies except one before the read can proceed
- (b) write to share data invalidates all copies except one before the write can proceed
- (c) both a & b
- (d) none

(iv) the stealth distributed scheduler uses **1**
- (a) preemptive local resource allocation
- (b) nonpreemptive local resource allocation
- (c) fcfs resource allocation
- (d) none

(v) System failure occurs due to **1**
- (a) processor failure
- (b) hardware failure
- (c) software failure
- (d) all of the above

(vi) Explain requirements of checkpointing. **2**

(vii) Define handsoff scheduling and its advantages. **2**

(viii) Define cipher block chaining. **2**

(b) Enlist and explain the mechanisms required to build Distributed File System. **8**

5 (a) Explain the dynamic distributed manager scheme to manage distributed share memory. Compare and contrast the scheme with centralized and fixed distributed manager schemes of DSM. **7**

(b) Explain above-average algorithm with its transfer, location, selection and information policies. **7**

OR

(b) Enlist and explain the problems in doing recovery in concurrent systems. **7**

6 Attempt any **four** of following : **16**

(i) Explain dynamic voting protocol.

(ii) Explain the Rivest-Shamir-Adleman method of cryptography.

(iii) Enlist and explain the differences of co-scheduling and smart scheduling.

(iv) Write a note on "Database Operating System."

(v) Explain how two phase locking can be applied to distributed database systems.
