Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E Sem-I Remedial Examination April 2010

Subject code: 710103

Subject Name: Distributed Operating System

Date: 08 / 04 / 2010 **Time: 12.00 noon – 02.30 pm**

Instructions:

Total marks : 60

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1 **(a)** Describe Shadow Blocks Technique for implementing file versions for easier recovery operations in Distributed File System **06**

(b) Of the four data transfer models that may be used in a distributed file system that uses the data caching model for file accessing, which models you, will prefer to use for each of the following types of distributed system? **06**

Also provide due justification to your answer.

a. A distributed system that supports diskless workstation
b. A distributed system in which each node has large disk storage space
c. A distributed system that uses the structured file model in which each file is a group of records

Q.2 **(a)** What is idempotent operation? Identify following idempotent operations **06**

(i) read_next_record(filename) (ii) seek(filename) (iii) add(int a1, int a2)
(iv) append_record(filename, record) (v) increment(var)

(b) Discuss various approaches available to implement "Thread Package" **06**

OR

(b) Describe steps involved in distributed approach for achieving mutual exclusion for a process which wants to enter in to a critical section. **06**

Q.3 **(a)** Describe Bully Algorithm to elect coordinator process **06**

(b) Describe steps involved in distributed approach for achieving mutual exclusion for a process which wants to enter in to a critical section. **06**

OR

Q.3 **(a)** What are the possible cache locations for file caching in distributed file system? Discuss the advantages of each. **06**

(b) Describe "Quorum Based" protocol to handle update of multiple copies of a file in Distributed File system. **06**

Q.4 **(a)** Briefly discuss key points of Hardware and Software Architecture of AMOEBA System. **06**

(b) Briefly discuss basic IPC mechanism of AMOEBA **06**

OR

Q.4 **(a)** Compare AMOEBA,MACH and CHORUS in terms of **06**

(a) System Model (b) Kernel (c) Process Management

(b) Compare AMOEBA,MACH and CHORUS in terms of **06**

(a) Intercrosses Communication (b) Memory Management

Q.5 **(a)** Explain architecture of DSM systems. Discuss the issues of Design implementation and discus various granularity. **06**

(b) Explain the general structure of shared memory space and it's consistence model and thrashing in it **06**

OR

Q.5 **(a)** Draw schematic diagram of OSI layered architecture, Explain each layer's basic functional role. **06**

(b) What is piggybacking of message? How does it reduce the network traffic? Give an example of piggybacking scheme **06**

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