

**B.E. (Computer Engineering)**  
**DISTRIBUTED OPERATING SYSTEMS**  
**(2008 Pattern) (Semester-II)**

*Time : 3 Hours]*

*[Max. Marks : 100*

*Instructions to the candidates:*

- 1) Answers to the two sections should be written in separate answer books.*
- 2) Answer any three questions from each section.*
- 3) Neat diagrams must be drawn wherever necessary.*
- 4) Figures to the right side indicate full marks.*
- 5) Use of Calculator is allowed.*
- 6) Assume Suitable data if necessary.*

**SECTION-I**

- Q1)** a) What is Distributed Computing Environment? List & explain goals and components of Distributed Computing Environment. [8]  
b) List and explain desirable features of good message passing system. [8]

OR

- Q2)** a) Draw & explain distributed computing system models. [8]  
b) List, explain & compare protocols for Distributed System. [8]

- Q3)** a) Define Distributed System and explain following: [10]  
i) Advantages.  
ii) Communication primitives.  
b) Discuss inherent limitations of Distributed Systems and their impact on the design and development of Distributed Systems with the help of example. [8]

OR

- Q4)** a) Explain issues in distributed operating system. [10]  
b) Define with respect to Lamport's logical clock- [8]  
i) Happened before relation.  
ii) Concurrent events with example.  
iii) Logical clock.  
iv) Limitation with example.

**P.T.O.**

- Q5) a)** Explain Path-Pushing algorithm and Edge-Chasing algorithm. [8]  
**b)** List and explain criteria of system model under which agreement problems have been studied. [8]

OR

- Q6) a)** Explain Ricart-Agrawala algorithm of distributed mutual exclusion. [8]  
**b)** Explain: [8]  
i) Issues in deadlock detection & resolution.  
ii) Control organization for distributed deadlock detection.

### **SECTION-II**

- Q7) a)** List and explain two important goals of distributed file system. Draw & explain architecture & typical data access actions in distributed file system. [10]  
**b)** List and explain advantages of distributed shared memory. [8]

OR

- Q8) a)** Explain algorithms for implementing DSM. [10]  
**b)** Explain components of a load distributing algorithm. [8]

- Q9) a)** Explain classification of failures and define following- [8]  
i) Failure.  
ii) Erroneous state.  
iii) Fault.  
iv) Error.  
**b)** Explain non-blocking commit protocol for single site failure. [8]

OR

- Q10) a)** Explain basic approaches of backward-error recovery. [8]  
**b)** Explain design principles for secure systems. [8]

- Q11) a)** Explain Grid Middleware & Grid Architecture. [8]  
**b)** What is service oriented grid? Explain with diagram. [8]

OR

- Q12) a)** What is OptorSim? Draw & explain architecture of OptorSim. [8]  
**b)** Explain with respect to SOA: [8]  
i) Service & its characteristics.  
ii) Service interaction cycle.

•••••