ANNA UNIVERSITY
B.E./B.Tech (Part Time) ARREAR EXAMINATIONS, March/April 2017
IT Branch
PTIT8402: Distributed Systems
(Regulations 2013)

Time: Three Hours   Max.Marks: 100
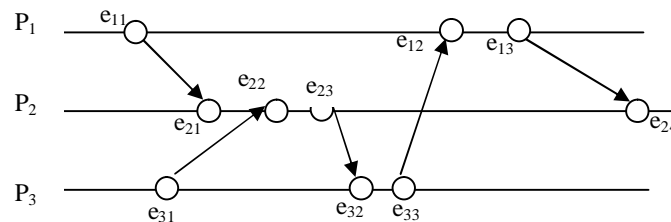**Answer All Questions**

PART-A (10 * 2 = 20 Marks)

1.   What is a virtual machine?
2.   What are the elements involved in an RPC. Name these.
3.   What is the purpose of mutual exclusion? Name two mutual exclusion algorithms.
4.   Explain the importance of clock synchronization in distributed environment.
5.   State all possible semantics in Distributed File System.
6.   Name four consistency mechanisms used in distributed systems.
7.   Why do we need fault tolerance in distributed system?
8.   What are the various stages in Three Phase Commit protocol?
9.   What is an object based system?
10.   What does CORBA stand for?

Part-B (5 * 16 = 80 Marks)

11.   i) Show the workings of Remote Procedure Call.   10
       ii) What is the importance of threads in a distributed environment?   6

12. (a) i) What is deadlock in a distributed system? Name the various methods of detecting deadlock in a distributed environment. Discuss an algorithm to implement diffusion computation mechanism in detecting distributed deadlock.   10
       ii) In the diagram below, show the vector timestamps of each of the events for processes P_1, P_2 and P_3.   6

OR

b) i) What are the various issues in distributed operating system? Discuss in
the light of clocks and message ordering.   10
ii) What are the various conditions for deadlock?   6

13 a) i) Discuss the data-centric consistency models.   8
ii) Discuss XEN architecture.   8

OR

b) i) Explain how map-reduce works with appropriate example.   8
ii) Describe Sun NFS architecture in detail.   8

14. a) i) Discuss the workings of Two-Phase Commit protocol along with the
problems and the possible solution.   16

OR

(b) i) Explain Byzantine failure with example.   8
ii) Show that it is not possible to obtain an agreement in a four node
system having two Byzantine faults.   8

15. (a) i) What is CORBA? Discuss types of communication used in CORBA.   8
ii) Discuss how mutual exclusion is implemented in CORBA.   8

OR

(b) Discuss VMWare as a case study.   16

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