

Total No. of Questions : 6]

SEAT No. :

**P59**

[Total No. of Pages : 2

**APR.-17/B.E./Insem.-69**  
**B.E. (Information Technology)**  
**DISTRIBUTED SYSTEM**  
**(2012 Pattern) (Semester - II)**

*Time : 1 Hour]*

*[Max. Marks : 30*

*Instructions to the candidates:*

- 1) *Answer Q1 or Q2, Q3 or Q4, Q5 or Q6.*
- 2) *Figures to right indicate full marks.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Assume suitable data, if necessary.*

**Q1) a)** Distinguish between: **[6]**

- i) Buffering and Caching
- ii) Caching and Replication
- iii) RMI and RPC.

b) Consider two communication services for use in asynchronous distributed systems. In service A, messages may be lost, duplicated or delayed and checksums apply only to headers. In service B, messages may be lost. Delayed or delivered too fast for the recipient to handle them, but those that are delivered arrive order and with the correct contents. **[4]**

- i) Describe the classes of failure exhibited by service A and service B. Classify their failures according to their effect on the properties of validity and integrity. Can service B be described as a reliable communication service?
- ii) Consider a pair of processes X and Y that use the communication service B from above to communicate with one another. Suppose that X is a client and Y a server and that an invocation consists of a request message from X to Y (that carries out the request) followed by a reply message from Y to X. Describe the classes of failure that may be exhibited by an invocation.

OR

**P.T.O.**

**Q2) a)** What factors affect the performance of an application that accesses shared data managed by a server? Describe remedies that are available and discuss their usefulness. [6]

b) What are various forms of transparency in distributed system? Illustrate network transparency with an example. [4]

**Q3) a)** Describe general organization of CORBA system with the help of suitable diagram. Why there is no explicit data-typing in CORBA CDR? [6]

b) What is Publish-Subscribe system of communication? [4]

OR

**Q4) a)** Explain Remote object reference and Remote interface in Distributed Object Model with suitable example. [6]

b) Explain the RPC exchange protocols used for implementing various types of RPC. [4]

**Q5) a)** What are the components of Web Services. Explain the need and use of web services with suitable example. [6]

b) Explain RMI software with respect to: [4]

i) Proxy                      ii) Dispatcher                      iii) Skeleton

OR

**Q6) a)** Specify the roles played by the objects that participate in distributed event-based systems with the help of architecture for distributed event notification. [6]

b) Write a note on: SOAP message. [4]

