Total No. of Questions :6]

SEAT No. :

P147

[Total No. of Pages :2

APR. -16/BE/Insem. - 67
B.E. (Information Technology)
DISTRIBUTED SYSTEM
(2012 Course) (Semester - II) (414461)

Time : 1Hour] *[Max. Marks :30*

Instructions to the candidates:

1) *Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6.*
2) *Figures to the right indicate full marks.*
3) *Neat diagrams must be drawn wherever necessary.*
4) *Assume suitable data if necessary.*

Q1) a) Write a note on Mobile and Ubiquitous computing. [4]

b) Explain the Architectural Models of Distributed Systems with suitable diagrams. [6]

OR

Q2) a) Explain in brief, various types of models based on fundamental properties and the failures they might exhibit. [4]

b) 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]

Q3) a) What are the characteristics of multicast messages that provide a useful infrastructure for constructing distributed systems. [4]

b) A client makes remote procedure callsto a server. The client takes 5 milliseconds to compute the arguments for each request, and the server takes 10 milliseconds to process each request. The local operating system processing time for each send or receive operation is 0.5 milliseconds and the network time to transmit each request or reply message is 3 milliseconds. Marshalling or unmarshalling takes 0.5 milliseconds per message. [6]

Calculate the time taken by the client to generate and return from two requests:

i) if it is single-threaded, and

ii) if it has two threads that can make requests concurrently on a single processor.

You can ignore context-switching times. Is there a need for asynchronous RPC if client and server processes are threaded?

OR

P.T.O.

Q4) a) What is Marshaling? List out the different approaches of external data representation and discuss each approach in detail. **[4]**

b) Explain the RPC exchange protocols used for implementing various types of RPC. **[6]**

Q5) a) State and explain different types of data structures with respect to UDDI. **[4]**

b) List the two design issues for RMI. Explain different methods of RMI invocation semantics. **[6]**

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. **[4]**

b) Write a brief note on: **[6]**

i) XML Security Requirements

ii) XML Signature

iii) Security Assertion Markup Language

EEE