P3138

[5154] - 704

B.E. (Information Technology)
DISTRIBUTED SYSTEM
(2012 Course) (Semester - II) (End Semester) (414461)

Time : 2½ Hours]   *[Max. Marks :70*

Instructions to the candidates:
1) *Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8, Q9 or Q10.*
2) *Figures to right indicate full marks.*
3) *Neat diagrams must be drawn wherever necessary.*
4) *Assume suitable data if necessary.*

Q1) a) A server program written in one language (for example, C++) provides the implementation of a BLOB object that is intended to be accessed by clients that may be written in a different language (for example, java). the client and server computers may have different hardware, but all of them are attached to an internet. Describe the problems due to each of the five aspects of heterogeneity that need to be solved to make it possible for a client object to invoke a method on the server object.   **[6]**

b) List the various challenges during the construction of Distributed systems. Describe the challenges while designing of scalable distributed system.**[4]**

OR

Q2) a) What are types of failures? Classify the following failures based on types of failures with justification.   **[6]**

i) Sudden shutdown of a system.

ii) Network crash.

iii) System reset while working.

iv) Unnoticed event handler closing a word document.

b) What are various forms of Transparency in Distributed System? Illustrate Network Transparency with an example.   **[4]**

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Q3) a) Explain role of client and server stub procedures in RPC in the context of a procedural language. **[6]**

b) Explain two main characteristics of distributed event-based systems. **[4]**

OR

Q4) a) What is Publich-Subscribe system of Communication? **[4]**

b) What are Web Services? Explain SOAP and REST based Web Services in a nutshell. **[6]**

Q5) a) Explain the Passive and Active model of replication for fault tolerance. **[8]**

b) Explain the Chandy-Lamport 'snapshot' algorithm for determining global states of distributed systems. **[8]**

OR

Q6) a) Explain Network Time Protocol to distribute time information over Internet. **[8]**

b) Explain Ricart and Agrawala algorithm to implement mutual exclusion between *N* peer processes that is based upon multicast. **[8]**

Q7) a) How does distributed file system differ from a file system used for a centralized time sharing system? **[8]**

b) Explain the design of Bit Torrent, a file sharing applicaiton. **[8]**

OR

Q8) a) Illustrate the concept of naming services and DNS in Distributed systems. **[8]**

b) Explain the Cluster based Distributed File Systems with suitable example of HDFS. **[8]**

Q9) a) Explain the SSL with respect to following: **[10]**

    i)   Record Protocol layer.

    ii)   Handshake layer.

    b) How is a host protected from mobile code using java sandbox? **[8]**

<p style="text-align:center">OR</p>

Q10) a) What do you meant by public-key Cryptography? Explain Digital Signatures with public keys. **[8]**

    b) Explain the following concepts with respect to Distributed Multimedia System. **[10]**

    i)   Resource Management.

    ii)   Stream Adaptation.

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