Computer Engineering Department,S V N I T, Surat.
Mid-Semester Examinations, February-March 2018
B Tech (CO)–VIIIsemester
Course: Distributed Algorithms

Dated: 5th March 2018 Time: 04.00 hrs to 05.30hrs Max Marks: 30

Instructions:

1. Write your B Tech Admission No/Roll No and other details clearly on the answer books while write your BTech Admission No on the question paper, too.
2. Assume any necessary data but give proper justifications.
3. Be precise and clear in answering the questions.

Q.1 Why distribution is required? Clearly mention the set of points to justly your answer. Also highlight the problems of distribution. [4]

Q.2 Give the explanation of different type of messages with the help of diagram as mentioned below and also provide the scenario where each one is applicable. [6]

i. Persistent Asynchronous
ii. Persistent Synchronous
iii. Transient Asynchronous
iv. Transient Synchronous (Receipt Based)
v. Transient Synchronous (Delivery Based)
vi. Transient Synchronous (Response Based)

Q.3 Use below parameters in order to show the comparison among Distributed OS (Multiproc. & Multicomp.), Network OS, and Middleware-based OS. Make a table to show your comparison. [5]

Parameters: Degree of Transparency, Same OS on all nodes, Number of copies of OS, Basis for communication, Resource management, Scalability, Openness

Q.4 Enlist the advantages and disadvantages of three methods for address space transfer: Total Freezing, Pretransferring, and Transfer on reference. [3]

Q.5 Answer the Following (ANY 3) [6]

a. Give the Difference between the void pointer and the null pointer.
b. What is network byte ordering? How communication does takes place in different byte order?
c. How to sure if the message has been received in UDP oriented Connection?
d. With diagram explain how asynchronous RPC differs with the classical RPC.

Q.6 Answer the Following (ANY 2): [6]

a. Explain the multi-threaded Data Server that listen on the 5050 port and waits for the client request.
b. What is the sequence of events during remote procedure call? Explain in brief.
c. Name and explain different layers of object-oriented equivalent of remote procedure calls (RPC)?

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Computer Engineering Department, S V N I T, Surat.
Mid-Semester Examinations, March 2020

B Tech (CO)–VIII Semester
Course: Distributed Algorithms (CO 402)

Dated: 02/03/2020 Time: 4:00 - 5:30 PM Max Marks: 30

Instructions:

1. Write your B Tech Admission No/Roll No and other details clearly on the answer books while write your BTech Admission No on the question paper, too.
2. Assume any necessary data but give proper justifications.
3. Be precise and clear in answering the questions.

Q.1 Answer the below questions.

[1] What do you mean by parallel computing & distributed computing? Most systems today use a combination of parallel and distributed computing. Present a scenario wherever the combination of both is applicable. [4 Marks]

[2] Give the explanation of different ways of communication as mentioned below with the help of diagram and also provide the scenario where each one is applicable. [6 Marks]

ii. Persistent Asynchronous
iii. Persistent Synchronous
iv. Transient Asynchronous
v. Transient Synchronous (Receipt Based)
vi. Transient Synchronous (Delivery Based)
vii. Transient Synchronous (Response Based)

[3] Use below parameters in order to show the comparison among Distributed OS (Multiproc. & Multicomp.), Network OS, and Middleware-based OS. Make a table to show your comparison. [3 Marks]

Parameters: Degree of Transparency, Same OS on all nodes, Number of copies of OS, Basis for communication, Resource management, Scalability, Openness

Q2. Answer the below questions.

[1] Consider a distributed environment with four systems A, B, C, D. Name the type of transparencies required in each of the following situations: [4 Marks]

a. Data available at all four systems and user want to modify the data at D. Replication
b. User want to access the software X without knowing its whereabouts. location.
c. Breakdown of system, D. failure.
d. Printer connected to A is disconnected and connected to B. User wants to access that printer. Migration, Relocation.

[2] The terms loosely coupled system and tightly coupled system are often used to describe distributed computer. systems. What is the different between them. [2 Marks]

[3] Draw a diagram and explain the proxy based remote object by taking example of common organisation. [3 Marks]

1.5. 1.5

[4] Explain Multi threaded client server scenario. Provide an example where Multi threaded server is advantageous compared to single threaded server. [3 Marks]

[5] A server is designed to perform single arithmetic operations (addition, subtraction, multiplication, division). Client interact with this server by using a RPC mechanism. Describe the content of the call and reply messages of this RPC application. Explain the purpose of each component.. [3 Marks]

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[6] Imagine a Web server that maintains a table in which client IP addresses are mapped to the most recently accessed Web pages. When a client connects to the server, the server looks up the client in its table, and if found, returns the registered page. Is this server stateful or stateless? Justify. [2 Marks]

table is in database.

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Computer Engineering Department, S V N I T, Surat.
Mid-Semester Examinations, March 2019

B Tech (CO)–VIII Semester
Course: Distributed Algorithms (CO402)

Dated: 5th March 2019 Time: 04.00 hrs. to 05.30hrs Max Marks: 30

Instructions:

1. Write your B Tech Admission No/Roll No and other details clearly on the answer books while write your BTech Admission No on the question paper, too.
2. Assume any necessary data but give proper justifications.
3. Be precise and clear in answering the questions.

Q.1 Answer the Following: [8]

a. Why middleware based distributed systems are built above the network operating systems, not distributed operating systems. Give proper justification.
b. Is a distributed algorithm more fault tolerant than a centralized algorithm? Provide an example to support your answer.
c. Provide two examples of applications that require persistent and asynchronous communication. Explain your answer.
d. Provide two examples of client-server applications in which using a multithreaded client is advantageous compared with a single threaded client. Explain.

Q.2 Message forwarding mechanisms ensure that all pending, en-route and future messages arrive at the process's new location. Discuss any two best mechanisms of message forwarding and compare to each other. [6]

Q.3 The process migration facility of a distributed system does not allow free migration of processes from one node to another but has certain restrictions regarding which node's processes can be migrated to which other nodes of the system. What might be reasons behind imposing such restriction? [4]

Q.4 Throw some lights on the design approach of the Advance operating system. In addition, Why Layered Approach was been advocated by Dijkstra to lessen the design and implementation complexities? [4]

Q.5 A server is design to perform simple string manipulation operation. [4]

Operation	Work of Operation
strlen()	Calculates the length of string
strcpy()	Copies a string to another string
strcat()	Concatenates(joins) two strings
strcmp()	Compares two string

Client interact with this server by using an RPC mechanism. Describe the content of the call and reply message of this RPC application, explanation the purpose of each component clearly.

Q.6 What components hide the network details from the programmer - in RMI. State your answer [2]

Q.7 Explain with the help of suitable diagram the full duplex communication between client and server in socket programming. [2]

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