

Course No : SWE4417	College of Engineering	Student No: _____
Course Tile: Distributed Systems	Final Exam Summer Term 2014	Student Name: _____
Exam Time: 2 Hours		Date: 18-09-2014
No of Questions: 9	Total Grade: 70	Try to Answer: first 8

Q1: (5 marks)

State whether each of the following statements is True or False:

- 1) The client/server model is organized around clients that request services and servers that provide services.()
- 2) The scalability is a major feature in distributed system to make is secure system.()
- 3) Fundamental models describe properties common to all architectural models often focusing on communications between nodes. ()
- 4) Proxy is a layer between client and server that may provide data and/or application processing. ()
- 5) Middleware is the software between your application and the operating system and networking on a computer. ()
- 6) An application does not need to know what port to use to contact the Port mapper. ()
- 7) The method Id and the marshalling and un-marshalling is handled by remote reference module. ()
- 8) An instance of RMI registry must be running on every computer containing a remote object. ()
- 9) One way of partitioning a system is to classify processes as client processes, server processes or peer processes. ()
- 10) CORBA objects are not garbage collected, but RMI objects are garbage collected automatically. ()

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Q2: (10 marks)- Choose the correct answer:

- 1)is a wide interconnected collection of computer networks of many different types.
 - a. The distributed System.
 - b. The Internet.
 - c. The middleware.
 - d. Architectural models.
- 2) is software that makes hardware useable.
 - a. Operating System
 - b. Middle ware.
 - c. The application.
 - d. All of the above.
- 3) Typically used as cache for web resources.
 - a. Internet.
 - b. Proxy server.
 - c. a and b.
 - d. None of the above.
- 4)is protection from compromise or loss of information or investment.
 - a. Reliability.
 - b. Security.
 - c. Load balancing.
 - d. None of the above.
- 5) is the time taken by a Web Service to process its sequence of activities.
 - a. Transaction time
 - b. Latency
 - c. Execution time
 - d. Throughput

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Q3: (10 marks)

- a- Define the distributed system, talk about the motivation for distributed systems, and list some advantages and disadvantages of it.
- b- Compare between centralized computing and client/server model.
 - What is centralized computing? disadvantages?
 - What is client/server model? advantages?
 - Draw a diagram for each.

Q4: (10 marks)

- a- Client-Server configurations are generally categorized in two types(One tire and N-tire), explain with drawing.
- b- Client-Server patterns are generally categorized in two types(Fat and Thin), explain with drawing.

Q5: (5 marks)

- a- Peer-to-peer model architecture is divided into structured and unstructured, list and explain shortly with drawing the structured peer-to-peer models.

Q6: (10 marks)

- a- What is the middleware, list some examples and list the main advantages and disadvantages of it..
- b- List the steps of Writing and Compiling and Running of any RMI App?

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Q7: (10 marks)

- a- List the fundamental models of distributed systems, explain why we need every model.
- b- The following issues have to be taken care while designing distributed systems, Talk about three of them:
 - Openness
 - Security
 - Scalability
 - Fault Tolerance
 - Concurrency
 - Transparency

Q8: (10 marks)

- a- In RMI Fault Tolerance there are three Invocation Semantics, list them.
- b- List at least two advantages and two disadvantages of CORBA middleware.
- c- Define web services? List types, List advantages.
- d- What is WSDL, SOAP?

Q9: (Bonus) (4 marks)

- a- RMI architecture is based on one important principle, write it.
- b- How does a client find a RMI remote service?
- c- How RMI solve the problem of :if the two computers use different representation for data (integers, chars, floating point)?
- d- Name one major disadvantage of the centralized p2p system.

Best Regards
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