

University of M'sila,
Faculty of Mathematics & Computer Science (CS),
Department of CS.

Course: Distributed Information Systems (ISIL 3rd year)

Year: 2023-2024

Duration: 1:30

Final Exam

Q1. (10 points)

Select ONE choice from the following:

1. What is RMI in Java?
 - a. A library for building Graphical applications in Java
 - b. A protocol for remote communication between Java applications
 - c. A framework for building distributed systems in Java**
 - d. None of the mentioned
2. The block which contains a set of statements where an exception can occur is called:
 - a. throws
 - b. try**
 - c. RemoteException
 - d. catch
3. Hiding that a resource may be shared by several users is called the transparency of:
 - a. Concurrency**
 - b. Replication
 - c. Shared resource
 - d. Scalability
4. There are many architectures of distributed systems:
 - a. Interface, client, server
 - b. Session beans, entity beans, and Message-driven beans
 - c. Client server and broker**
 - d. None of the mentioned
5. In the broker architectural style, the client and the server communicate through a middleware system named:
 - a. CORBA
 - b. Software bus**
 - c. Distributed object
 - d. Broker, stub, skeleton
6. Suitable for complex distributed systems with heterogeneous components:
 - a. RMI
 - b. Binder
 - c. EJB
 - d. CORBA**

7. The HTTP connection is persistent. This means:
 - a. The HTTP allows Media Independent Mail Exchange through TCP connection
 - b. The HTTP does not allow Media Independent Mail Exchange through TCP connection
 - c. The server closes the TCP connection after delivering the response
 - d. The server does not close the TCP connection after delivering the response
8. Object whose method can be invoked from another Java Virtual Machine:
 - a. Object servers
 - b. Remote objects
 - c. Enterprise Beans
 - d. Transient objects
9. There are three forms of intermediate systems with TCP connections:
 - a. Protocol, Hostname, Port
 - b. URL, Firewall, cache
 - c. Proxy, Gateway, Tunnel
 - d. None of the mentioned
10. The process of transmission of parameters passed to a remote method from client to server and vice-versa is called:
 - a. Marshalling and unmarshalling
 - b. Encoding or decoding
 - c. Binding
 - d. None of the above

Q2. (10 points)

Hotel reservation system is a kind of **distributed systems** that allows hotels to manage reservations and take bookings and appointments online. It also enables potential **clients** to reserve and pay for a service directly through the website. The following is a part of a large database available in the **server**.

City	Hotel	Number of empty rooms
City1	Hotel1	10
City1	Hotel2	15
City1	Hotel3	0
City2	Hotel1	0
City2	Hotel2	150

- Write a simple hotel reservation system where the server can:
 1. Display all hotels with empty rooms that exist in any city specified by the client
 2. Reserve a room (booking), if possible, in a city and a hotel specified by the client
- The hotel manager needs to modify the system by adding other services. As a system developer, which design approach will you follow? Justify?
- We will follow the bottom up design approach since the hotel reservation system is already exist and we will not develop it from scratch.