بِسْمِ اللَّهِ الرَّحْمَٰنِ الرَّحِيمِ

Course No: ESGD4221 **Course Title: Distributed System.** **Date: 12/ 08 / 2012** **No. of Questions: _____** **Time: 2 H.** **Using Calculator (Yes)**	**University of Palestine** **Final Exam** **Summer 2011/2012** **Total Grade: 60**	**Instructor Name: Eng. M. Timraz** **Student No.: _____** **Student Name: _____** **College Name: Engineering** **Dep. / Specialist: Software** **Using Dictionary (No)**

First Question **No. of Branches (2)** **(20/60)**

Q1 B1: **(10/20)**

Put True or False in the specific table below.

(1) Proxy is a layer between client and server that may provide data and/or application processing.
(2) Middleware and distributed applications have to be implemented on top of a network protocol.
(3) TCP (Transport Control Protocol) and UDP (User Datagram Protocol) are both transport protocols implemented on top of the Internet protocol (IP).
(4) Each segment carries a checksum. If the received segment doesn't match the checksum, it is dropped and will not retransmit.
(5) According to the IP, packets may be dropped because of congestion or network error. Remote objects must have a way to be accessed through a remote reference.
(6) Java manually detects and frees memory that is no longer in use.
(7) Scalability is ensuring that when something goes wrong, the system can recover or bypass the fault rapidly without loss of information.
(8) In DS Clients see only one system.
(9) An application does not need to know what port to use to contact the Port-mapper.
(10) In N-Tier Configurations, Processing and data storage can occur on only one node.

1	2	3	4	5	6	7	8	9	10

Q1 B2 **(10/20)**

Choose the correct answer (a, b, c or d) and then put it in the specific table in the model answer note.

(1) …….is an infrastructure enabling the invocation of a method on a remote object.
a. RBC.
b. Objects.
c. Attributes.
d. Java RMI.
(2) ……..receives a request from the communication module, identifies the invoked method and directs the request to the corresponding method of the skeleton.
a. The dispatcher.
b. The remote reference module.
c. The TCP/UDP Protocols.

d. The object requester.
(3) …….. means must be provided to free up the space used by objects when they are no longer needed.
a. Skeleton.
b. CORBA.
c. Proxy.
d. Garbage collection.
(4) The client sends a request to a server and crashes before the server replies.
a. Server crashes.
b. Client crashes.
c. Request crashes.
d. Reply crashes.
(5) ……to simplifies code, and avoids the need to write tests for all possible potential problems.
a. Invocation Test.
b. Exceptions.
c. Initializes new objects.
d. Drop the invocation method.
(6) An interface defines the ……..of a set of methods.
a. arguments.
b. parameters.
c. signatures.
d. return values.
(7) Objects consist of:
a. Information - a set of data.
b. Behavior - a set of methods.
c. a and b.
d. non of the above.
(8) …….. a common interface is shared between remote object and the reference obtained by the client.
a. Proxy.
b. JVM.
c. Protocol.
d. Remote interface.
(9) Distributed systems can be used in many different ways by persons or systems with different……..
a. Attributes.

b. Objectives.
c. a and b.
d. non of the above.

(10) …….High potential throughput can be defeated if the work is not distributed to make maximum use of potential because some of the system is idle.
a. Reliability.
b. Time Criticality.
c. Load balancing.
d. all of the above.

1	2	3	4	5	6	7	8	9	10

Second Question **No. of Branches (2)** **(10/60)**

Q2 B1 **(5/10)**

What are potential problems with client-server systems?
How are they solved with peer-to-peer systems?
What are key issues and problems with peer-to-peer systems?

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Q2 B2 **(5/10)**

Remote Method Invocation: trace the way of a request and of the reply from the client to a remote server and back. Illustrate with a figure.

Third Question **No. of Branches (10)** **(20/60)**

Define the major function for the following terms:

(1) At-Least-Once Invocation Semantics:

(2) At-Most-Once Invocation Semantics:

(3) Exactly once semantics:

(4) Binder:

(5) RMI registry:

(6) Actions:

(7) Events:

(8) Peer to peer:

(9) Middleware:

(10) Signature:

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Fourth Question Number of Branches (1) (10/60)

Under this title, Architectural models are ways to organize the parts and structure the relationships between them.

(1) Design a distributed system for a social organization Working in the service of people wounded and the martyrs in Gaza, It has "4" branches in Gaza, Jabalea, Deralblah and Rafah.

- They interest is to collect data for the wounded and the martyrs and their families.
- They paid a salaries for them by cash transfer bank directly from a system connects all branches with the main branch in Gaza which link to the bank with financial system.
- Each branch has an internet connection with bandwidth 265Kbps.

(2) You should consider the following:

2.1 The type of the architectural model.
2.2 The type of client and server type.
2.3 The tire type you need to implement.
2.4 The number of proxy if you need and its contents.
2.5 The type of connection between branches and the bank.
2.6 The middleware you will use.
2.7 The type of protocols you will apply on the network.
2.8 The minimum bandwidth you need to the main branch.

(3) Draw a suggestion graph to implement the system above showing all DS parts you use or need.

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End of Questions