بِسُدِ مِٱللَّهِٱلرَّحْمَزِٱلرَّحِيمِ

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

<u>Q1 B1:</u> (10/20)

Put True or False in the specific table below.

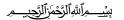
- (1) Proxy is a layer between client and server that may provide data and/or application processing.
- (2) Middleware and distributed applications have to be implemented on top of a network protocol.
- (3) TCP (Transport Control Protocol) and UDP (User Datagram Protocol) are both transport protocols 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.

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>

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.



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d. The object requester.				
(3) means must be	e provided to free up the	space used by objects when		
they are no longer needed.	· r · · · · · · · · · · · · · · · · · ·	The state of the s		
a. Skeleton.				
b. CORBA.				
c. Proxy.				
d. Garbage collection.				
(4) The client sends a request to a	server and crashes before	e the server replies.		
a. Server crashes.		1		
b. Client crashes.				
c. Request crashes.				
d. Reply crashes.				
(5)to simplifies	code, and avoids the nee	ed 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 met	hods.		
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 into	erface 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 use	d in many different ways	s by persons or systems with		
different				
a. Attributes.				

بِسُيهِ مِٱللَّهِ ٱلرَّحْمَٰزِ ٱلرَّحِيمِ

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b. Object c. a and b d. non of (10) distribute a. Reliable b. Time C c. Load b d. all of t	the above the above the above to make the ility. Criticality the alancing.	High p e maximu		- 1					
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	8	9	<u>10</u>

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 Remote Method Invocation: trace remote server and back. Illustrate	-	(5/10) I of the reply from the client to a
Temote server and back. Inustrate	with a figure.	
Third Question Define the major function for the (1) At-Least-Once Invocation Sen	•	(20/60)
(2) At-Most-Once Invocation Sen	nantics:	
(3) Exactly once semantics:		
(4) Binder:		



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(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