

## First Question

(10/60)

### Q1: choose the right answer or answers:

1.1) Which of the following UML artifacts are used to show the distribution of processes, resources and objects in a system?

- (a) Interaction diagrams.
- (b) Sequence diagrams.
- (c) Deployment diagrams.
- (d) Communication diagrams.
- (e) State machine diagrams.
- (f) Class diagrams.
- (g) Glossaries.

1.2) Which of the following UML artifacts is used to show the steps involved in getting value from a system?

- (a) User interface sketches.
- (b) Glossaries.
- (c) State machine diagrams.
- (d) Use cases.
- (e) Class diagrams.
- (f) Deployment diagrams.

1.3) What is an association class?

- (a) It describes the various kinds of relationship that can exist between classes.
- (b) It adds attributes and/or behavior to an association between two other classes.
- (c) It associates an object with the class of which it is an instance.

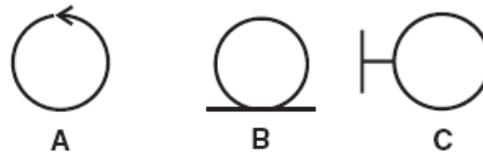
1.4) Which question does the use of multiplicity on relationships answers?

- (A) How many links can an object of one type maintain with objects of another type?
- (B) Is an object of a given type permitted to interact with objects of another type?
- (C) Is the relationship between objects permanent or temporary?

1.5) Why are layers important in subsystem design? Choose all options that apply.

- (a) They make it easier to change the implementation
- (b) They reduce the number of classes in the implementation
- (c) They increase reuse
- (d) They reduce complexity

1.6) With reference to the following figures, what kind of objects are A, B and C?



- (A) A is an entity, B is a controller, C is a boundary.
- (B) A is a boundary, B is an entity, C is a controller.
- (C) A is an entity, B is a boundary, C is a controller.
- (D) A is a controller, B is an entity, C is a boundary.
- (E) A is a boundary, B is a controller, C is an entity.
- (F) A is a controller, B is a boundary, C is an entity.

1.7) With reference to the previous figure, which kind of icon would you use to represent a communication path between systems or between a human and a system?

- (a) A.
- (b) B.
- (c) C.

1.8) With reference to the previous figure, which kind of icon would you use to represent a business object containing useful information?

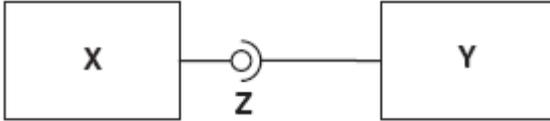
- (a) A.
- (b) B.
- (c) C.

Course No: ESGD4117  
Course Title: Object Oriented  
Analysis and Design  
Date: 05 / 01 / 2012  
No. of Questions: 4  
Time: 2 hr  
Using Calculator (No)

University of Palestine  
  
Final Exam  
First term 2011/2010  
Total Grade: 60

Instructor: Eng. Tasneem Darwish  
Student No.: \_\_\_\_\_  
Student Name: \_\_\_\_\_  
College Name: Eng. College  
Dep. / Specialist: Software Engineering  
Using Dictionary (No)

1.9) In the following figure what is Z?



- (a) A class.
- (b) An event.
- (c) An interface.
- (d) A boundary.
- (e) A property.

1.10) In UML, which diagrams are used to show messages sent between objects?

- (A) Activity diagrams.
- (B) Object diagrams.
- (C) Communication diagrams.
- (D) State machine diagrams.
- (E) Deployment diagrams.

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## Second Question

(8/60)

Which of the following statements are true:

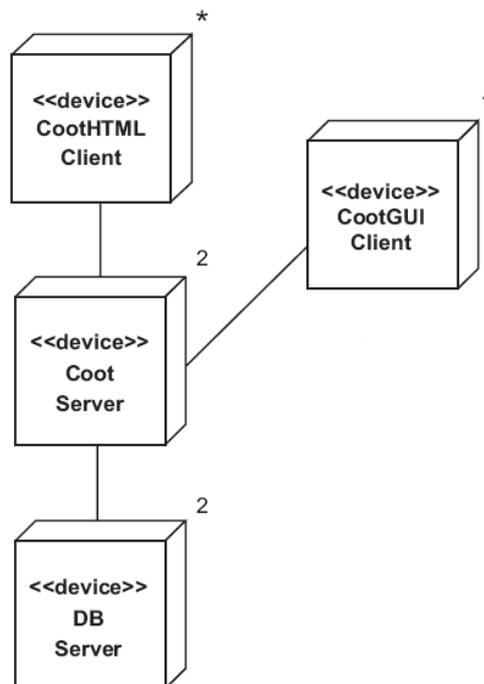
1. The easiest approach to concurrency is to constrain the system or introduce extra business rules ( )
2. Authentication is to be sure that information hasn't been damaged, accidentally or maliciously, on its way from the source to us ( )
3. One of the widely used security techniques are encryption and decryption. ( )
4. the quantum cryptography is a very weak encryption algorithm. ( )
5. The close layer manages the objects below but doesn't completely hide them. ( )
6. Open layers are generally safer than close layers. ( )
7. Extranet is also referred to as a Virtual Private Network (VPN). ( )
8. In the three tier architecture the middle tier stores the data and provides safe concurrent access to it. ( )

**Third Question**

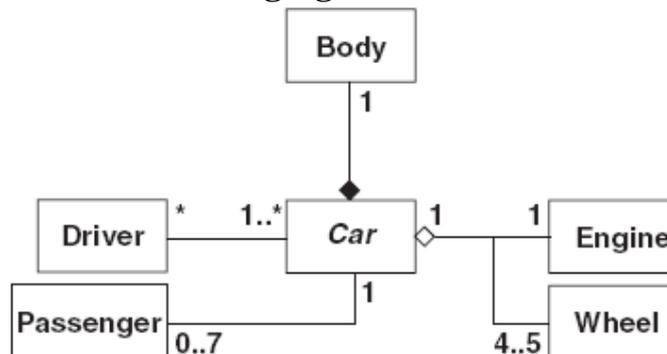
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**Q3 (A): with reference to the following figure answer the following questions:**

- 1) What does the notation << device >> mean?
- 2) How many servers this system have?
- 3) Does the GUI have direct access to the DB server?
- 4) What does the \* notation mean?



**Q3 (B): with reference to the following figure answer the following questions:**



- 1) How many drivers a car can have?
- 2) How many car a driver can drive?
- 3) What is the relation between a car and its engine? Why this relation can not be the same as the one between the car and its body?

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**Q3 (C): read carefully the following mission statement for a coffee machine system, then try to write four system use cases for this system in details and draw the required activity diagram:**

“The coffee machine has five different choices of drinks also it has two buttons to increase or decrease the sugar level. The coffee machine is always in standby mode until user insert money, and then the machine waits until the user specifies the sugar level and the drink choice then it will start processing the user order. If the money is not enough for the chosen drink then it will ask the user to insert more money then it start processing after it gets the write amount of money. When the machine finish processing the drink it returns the change for the customer and return to the standby mode. If the machine doesn't have the required change it will not process the user order and it returns the money back and display a message (there is no change). If any of the component of the drinks is not available it will return the money and display the message (sorry your order can not be processed)”

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**Fourth Question**

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**Answer the following questions and choose one of them to be your bonus question:**

**Q4 (A): what is Use case realization**

**Q4 (B): why we sometimes prefer to use communication diagram instead of sequence diagram?**

**Q4 (C): what does the Green, Amber and Red colors means in prioritizing system use cases?**

**Q4 (D): what are the advantages of Incremental methodology?**

**Q4 (E): what is the purpose of using an activity diagram? And what are the forks and joins?**

**Q4 (F): what is the difference between tangible and intangible objects?**

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*Good Luck*

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