

Course No : SWE 4414 **College of Engineering** **Student No:** _____

Course Title: Object Oriented **Midterm Exam First** **Student Name:** _____
Analysis And Design **Term 2014/2015**

Exam Time: 1 Hour **Eng. Ibrahim Al-Sharif** **Date: 27-11-2014**

No of Questions: 4 **Total Grade: 20** **Try to Answer: All**

1- State if the following statements True Or False: (5 marks)

- i. *Generalization describes an object that is made up of other objects ()*
- ii. *Encapsulation is ensuring that the data inside an object can only be accessed via operations ()*
- iii. *Polymorphism is the ability of a variable to point at different classes of object at different times ().*
- iv. *Object-oriented type system used for making sure that all messages invoke a concrete method ()*
- v. *Abstract class is a class with no concrete subclasses()*

2- Choose The Correct Answer(s): (5 marks)

- i. *What is meant by 'object identity'? Choose only one option.*
 - a) *Two objects are identical if their attributes have the same value.*
 - b) *Every object's class has a unique serial number.*
 - c) *All objects are the same as each other.*
 - d) *Every object has a unique identity that distinguishes it from all other objects.*

- ii. *Which of the following statements about multiple inheritance are true? Choose all options that apply.*
 - a. *It offers more modeling choices.*
 - b. *It makes it more difficult to write compilers and (fast) runtime systems.*
 - c. *It simplifies inheritance hierarchies.*
 - d. *It solves the problem of repeated inheritance.*

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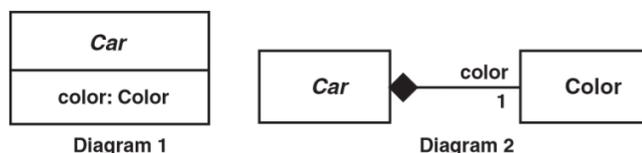
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- iii. *Why is the ability to redefine a method important in object-oriented programming? Choose all options that apply.*
- a) *Because it allows us to add extra work to a method.*
 - b) *Because it allows us to introduce abstract methods that are redefined as concrete methods.*
 - c) *Because it allows us to provide a more accurate or faster definition in a subclass.*
 - d) *Because it allows us to disable a method in a subclass.*
 - e) *Because it allows us to change the meaning of a method.*
- iv. *Which of the following UML artifacts are used to show the distribution of processes, resources and objects in a system? Choose only one option.*
- a) *Interaction diagrams.*
 - b) *Sequence diagrams. .*
 - c) *Communication diagrams.*
 - d) *None of the above.*
 - e) *Glossaries.*
- v. *With reference to figure below, what is the difference between the two diagrams? Choose only one option.*
- (a) *In Diagram 1, color is public but in Diagram 2 color is private.*
 - (b) *Diagram 2 indicates that the car's color can be removed and replaced.*
 - (c) *Diagram 1 shows an abstract class and Diagram 2 shows a concrete class.*
 - (d) *None, they mean the same thing.*



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3- Draw a use case diagram (with relations as you can) form the following requirement statement Or Draw the activity diagram for use case of (student need to borrow any book from the library). (5 marks)

The system to be designed is an online library for University Of Palestine, System must be able to allow registered students to search, browse books list, and send order to borrow at most three books at a time ..

System must allow the director of the library to view all requests and check the number of books borrowed by each student , if the book(s) requested still available director confirm the request and send borrow details to the student, otherwise confirm only the available books and send details.

Director must able to check how many books are borrowed from the library at this time, enter record of new books, maintain their records and retrieve the details of books available in the library.

4- Solve only 5 (5 marks)

- a. *What is the two ways to connect objects? Give one example for each way.*
- b. *What is Message and Operation, what relation between them?*
- c. *What is the benefits of inheritance?*
- d. *What is variable polymorphic and method polymorphic?*
- e. *What is the difference between multi-level and multiple inheritance?*
- f. *What is casting, list types, when it is safe?*
- g. *What is Software Methodologies?*
- h. *What is the difference between spiral and iterative methodologies?*
- i. *What is the difference between private, public and protected modifiers in Java?*

Best Wishes..