



UNIVERSITY EXAMINATIONS: 2013/2014

**EXAMINATION FOR THE MASTER OF SCIENCE IN INFORMATION
SYSTEMS MANAGEMENT/ ADVANCED DATABASE AND VISUAL
ANALYTICS**

MISM 5101 OBJECT ORIENTED TECHNOLOGIES

DATE: AUGUST, 2014

TIME: 2 HOURS

INSTRUCTIONS: Answer Question One and Any Other Two Questions

QUESTION ONE [20 MARKS]

- a) What is an object oriented paradigm? Explain two differences between the object oriented paradigm of programming languages and the structured paradigm of programming languages.
(5 Marks)
- b) What is message passing? Explain the need of message passing in object oriented programming with an example.
(5 Marks)
- c) What is a constructor? Write a Java program to explain the need of a constructor in problem solving.
(5 Marks)
- d) What is a global variable? Explain two major problems that may occur due to global variables.
(5 Marks)

QUESTION TWO [15 MARKS]

- a) In your own words, describe why the recursive/parallel process model is appropriate for OO systems.
(4 Marks)
- b) You have been assigned the job of engineering new word-processing software. A class named **document** is identified. Define the attributes and operations that are relevant for **document**.
(4 Marks)
- c) Consider a typical graphical user interface. Define a set of classes (and subclasses) for the

interface entities that typically appear in the GUI. Be sure to define appropriate attributes and operations. (7 Marks)

QUESTION THREE [15 MARKS]

- a) Using your own words and a few examples, define the terms *class*, *encapsulation*, *inheritance*, and *polymorphism*. (4 Marks)
- b) Object-oriented software engineering is rapidly displacing conventional software development approaches. Yet, like all technologies, OO has flaws. In summary, give three critics to say about OO and you believe care must be taken when applying the OO paradigm. (6 Marks)
- c) In your own words describe the difference between static and dynamic views of an OO system. (5 Marks)

QUESTION FOUR [15 MARKS]

- a) Discuss how the use-case can serve as an important source of information for design. (4 Marks)
- b) Conduct an abbreviated domain analysis for one of the following areas:
 - i) A university student record-keeping system.
 - ii) An e-commerce application (e.g., clothes, books, electronic gear).
 - iii) Customer service for a bank.
 - iv) A video game developer.
 - v) An application area suggested by your instructor.Be sure to isolate classes that can be used for a number of applications in the domain. (8 Marks)
- c) The design pyramid for OOD differs somewhat from the pyramid described for conventional software design. Discuss the differences and similarities of the two pyramids. (3 Marks)