THE CATHOLIC UNIVERSITY OF EASTERN AFRICA

A. M. E. C. E. A

MAIN EXAMINATION

MAY – JULY 2018 TRIMESTER

FACULTY OF SCIENCE

DEPARTMENT OF COMPUTER AND LIBRARY SCIENCE

PART TIME   PROGRAMME

CMT 310: OBJECT ORIENTED SYSTEMS ANALYSIS AND DESIGN

Date: JULY 2018	**Duration: 2 Hours**
INSTRUCTIONS: Answer Question ONE and any other TWO Questions	

Q1.   a)   Briefly state why Object Oriented approach to software development is
             important to the Software industry.   **(2 marks)**

      b)   State the relationship between object oriented design, programming and
           object oriented language.   **(3 marks)**

      c)   Use a school management system scenario to demonstrate the following
           object oriented approach concepts.   **(12marks)**
                    i)   objects
                    ii) classes
                    iii) inheritance
                    iv) polymorphism

      d)   Discuss the application of the following object oriented programming scope
           specifiers:
                    i)   Public   **(9 marks)**
                    ii) new
                    iii) protected

      e)   Explain **TWO** designing approaches used in software design.   **(4 marks)**

Q2.   a)   Explain using example the concept of the Data Dictionary.   **(4 marks)**

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b) Differentiate between cohesion and coupling.   **(4 marks)**

c) Define the following terms;
    i)   Modularization
    ii)   Polymorphism
    iii)   Encapsulation   **(6 Marks)**

d) Differentiate between verification and validation in system analysis.
                                                                    (2 marks)

e) Evaluate **FOUR** requirements of elicitation techniques.   **(4 marks)**

Q3.   a) State **THREE** project estimation techniques used in software engineering.
                                                                    (3 marks)

b) State **FOUR** responsibilities that a project manager shoulders in a project.
                                                                    (4 marks)

c) Discuss project estimation techniques majorly used software creation.
                                                                    (4 marks)

d) State **FOUR** activities involved in the risk management process.   **(4 marks)**

e) Highlight the components of graphical user interface.   **(2 marks)**

f) Using necessary illustration, explain the concept of DFD**.**   **(3 marks)**

Q4.   a) State THREE benefits of using inheritance.   **(3 marks)**

b)   Discuss **FOUR** forms of inheritance and use illustration to demonstrate your
       answer.   **(4 marks)**

c) State and explain **THREE** types of software existing in the world today**.**
                                                                    (6 marks)

d) Write a C++ program that adds three integers explicitly.   **(5 marks)**

e) Identify **TWO** models suitable for system design.   **(2 Marks)**

Q5.   a) Discuss **TWO** levels of software testing used in software techniques**.**
                                                                    (2marks)

b) Describe the concept of agile method technique in software development.
                                                                    (4 marks)

a) Describe **TWO** types of documentations stating their importance.**(4 marks)**

b) Compare and contrast the iterative model versus the V-model. **(4marks)**

c) Explain **THREE** types of constructors in object oriented programming.
(6 marks)

END

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