[Knowledge for Development]

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS
2015/2016 ACADEMIC YEAR

END OF SEMESTER EXAMINATIONS
YEAR ONE SEMESTER TWO EXAMINATIONS

FOR THE MASTER OF SCIENCE IN INFORMATION TECHNOLOGY

COURSE CODE : MIT820

COURSE TITLE : ARCHITECTURES FOR SOFTWARE SYSTEMS AND EMERGING ISSUES

DATE: 13/05/2016   TIME: 9.00AM-11.00AM

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTIONS ONE AND ANY OTHER TWO

SECTION A (Compulsory – 20 Marks)

QUESTION ONE

a) Explain each of the following terms as applied to architectures for software systems and emerging issues:

    (i) Architecture style   (3 Marks)
    (ii) Event- driven   (3 Marks)
    (iii) Publishers   (3 Marks)
    (iv) Agents   (3 Marks)

b) Software system builders are increasingly recognizing the importance of exploiting design knowledge in the engineering of new systems. One way to do this is to define an architectural style for a collection of related systems.
Explain this   (2 Marks)

c) Explain three object – oriented architectural style has several key principles.   (6 Marks)

SECTION B (Attempt any TWO Questions from this section – 40 Marks)

QUESTION TWO

(a) A system context is a fundamental artifact in the software architecture of a system. Developing the system context view is important, because this view is used as a mechanism to trace back to the business context, and downstream to the functional and operational architecture.

Show a clearly annotated system context diagram for your university.   (10 Marks)

(b) The key to the quality of a software is its architecture. Explain what to consider when assessing software architectures.   (10 Marks)

QUESTION THREE

(a) Software development problems occurring in practice are mostly complex in nature. Their solution requires a thorough requirements analysis and a careful design. Requirements analysis and the development of appropriate software architecture are closely related and should be conducted in a systematic way.
Discuss how to Derive Software Architectures from Problem Descriptions   (10 Marks)

(b) Software Development Life Cycle (SDLC) is a framework that describes the activities performed at each stage of a software development project.
Discuss, with the help of a diagram, the Water fall Model.   (10 Marks)

QUESTION FOUR

(a) Discuss Software Architecture from the traditional view.   (8 Marks)
(b) Discuss the N-Tier and 3-Tier Architectural Styles   (12 Marks)

QUESTION FIVE

(a) An understanding of architectural styles provides several benefits.
Explain two of such benefits. (4 Marks)

(b) Discuss the Client/Server Architectural Style. Include three variations on the client/server
style and the style's benefits in your discussion. (16 Marks)