KIBABII UNIVERSITY
(KIBU)
UNIVERSITY EXAMINATIONS
2017/2018 ACADEMIC YEAR

END OF SEMESTER EXAMINATIONS
YEAR 1 SEMESTER 2

FOR THE DEGREE OF
MASTER OF SCIENCE (INFORMATION TECHNOLOGY)

COURSE CODE : MIT 820

COURSE TITLE : ARCHITECTURES FOR SOFTWARE SYSTEMS & EMERGING ISSUES

DATE: 19/10/2018   **TIME:** 9.00 AM – 12.00 PM

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS.

ALL QUESTIONS CARRY 20 MARKS EACH

SECTION A (Compulsory – 20 Marks)

QUESTION ONE

a) (i) Explain the term "Software architecture"

(3 Marks)

b) Discuss the concept Component based software engineering (CBSE)   (6 Marks)

c) Discuss each of the following Software Engineering quality attributes:

i) Modifiability

ii) Integrability

(3 Marks)

(3 Marks)

iii) Software testability

(3 Marks)

d) (i) Explain why it is necessary to use a database link

(2 Marks)

SECTION B (Attempt any two questions – 40 Marks)

QUESTION TWO

a) Explain the term "Architectural requirements".

(3 Marks)

b) (i) Explain the object-oriented architectural styles

(4 Marks)

(ii)How does the choice of an architectural style affect a software development project?

(3 Marks)

c) Discuss a software architecture and its importance   (6 Marks)

d) Explain an architectural pattern and how it is different from an architectural style.

(4 Marks)

QUESTION THREE

a) Explain database links

(6 Marks)

b) (i) Explain what a shared database link is.

(3 Marks)

(ii) A shared database link can exist in any of these four configurations.

Explain how shared links differ from standard database links.

(3 Marks)

c) Software architecture defines the components and the responsibilities of each component. It also defines the circumstances under which each component will have to change. Discuss four categories that an architecture effectively classifies for all possible changes made within a software.

(8 Marks)

QUESTION FOUR

a) Discuss five Software Run-Time quality attributes

(10 Marks)

b) Explain the concept of architectural styles in relation to architectures for software systems.

(5 Marks)

c) Discuss data flow architectures in terms of the pipe – and filter style   (5 Marks)

QUESTION FIVE

a) Distinguish between distributed databases and distributed processing   (5 Marks)

b) Explain what a good pattern does in relation to software systems   (5 Marks)

c) Discuss the concept of a data repository   (10 Marks)