TECHNICAL UNIVERISTY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

UNIVERSITY EXAMINATIONS FOR DEGREE IN:
BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY
(BSIT 12J – J-FT)

EIT 4404: SOFTWARE COMPONENT PROGRAMMING

END OF SEMESTER EXAMINATION
SERIES: APRIL 2015
TIME: 2 HOURS

Instructions to Candidates:
You should have the following for this examination
- *Answer Booklet*

This paper consists of **FIVE** questions.
Attempt question **ONE (Compulsory)** and any other **TWO** questions
Maximum marks for each part of a question are as shown
This paper consists of **TWO** printed pages

Question One (Compulsory)

a) Explain the following concepts in relation to principles of components oriented programming:
   (i) Separation of interface and implementation
   (ii) Binary compatibility
   (iii) Language independence
   (iv) Location transparency
   (v) Concurrency management
   (vi) Version control **(12 marks)**

b) Discuss by clearly showing the difference and similarities between web service composition and web service conversation **(8 marks)**

c) State the TWO types of connection among USGI components and differentiate between the two kinds of connection **(6 marks)**

d) State THREE steps for building, developing and using NET **(4 marks)**

Question Two

a) State THREE differences between CORBA and web services **(6 marks)**

b) State TREE communications between structured programming (SP), object oriented programming and component oriented programming (COP) **(9 marks)**

c) Outline the THREE main goals of component programming **(5 marks)**

Question Three

a) Describe these compound forms as describe in component programming:
- **(i)** Component programming
- **(ii)** Component specification
- **(iii)** Component interface
- **(iv)** Component implementation
- **(v)** Installed component
- **(vi)** Component object **(20 marks)**

Question Four

a) In the context of web services, describe the following interactions between web services:
- (i) Synchronous and asynchronous interaction
- (ii) Static and dynamic invocation **(10 marks)**

b) Write short notes on the following services:
- (i) Object request broker (ORB)
- (ii) Object adapter (OA)
- (iii) Stub and skeleton
- (iv) Interface repository (IR) and Implementation Repository
- (v) Interface definition language **(10 marks)**

Question Five

Explain the following principles of COP:

- **a)** Binary compatibility between client and server
- **b)** Language independence
- **c)** Location transparency
- **d)** Versioning support **(20 marks)**