



TECHNICAL UNIVERISTY OF MOMBASA

# Faculty of Engineering & Technology

UNIVERSITY EXAMINATION FOR:  
BACHELOR OF TECHNOLOGY IN INFORMATION COMMUNICATION  
TECHNOLOGY  
(BTIT 11M – Y4 S1)

**EIT 4407: SOFTWARE COMPONENT PROGRAMMING**

END OF SEMESTER EXAMINATION

**SERIES: APRIL 2014**

**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) State ONE function/service of the following CORBA architecture parts:
- (i) Object Request Broker (ORB) (2 marks)
  - (ii) Object Adapter (OA) (2 marks)
  - (iii) Stub and Skeleton (2 marks)
  - (iv) Interface Reporsitory (IR) and Implementation (2 marks)
  - (v) Interface Definition Language (IDL) and Language Mapping (2 marks)
- b) State THREE key importance of component oriented programming (6 marks)
- c) Distinguish COP and OOP in terms of engineering aspects. (4 marks)
- d) Outline the similarities between COP and OOP (2 marks)
- e) In the context of COP discuss the following:

- (i) Conquering complexity (4 marks)
- (ii) Managing change (2 marks)
- (iii) Reuse (2 marks)

### Question Two

- a) State the difference between CORBA and web service. (4 marks)
- b) What is synchronous interaction in the context of connection model of a web model of a service? (4 marks)
- c) Outline the difference between MS DCOM.NET components and web services components. (4 marks)
- d) Systems that support COOP and the programmers that use them adhere to a set of core principles outline FOUR of these principles. (8 marks)

### Question Three

- a) Discuss the varied types of web service components and their deployments. (10 marks)
- b) Discuss the following in the context of principles of COP:
  - (i) Binary compatibility between client and server (2 marks)
  - (ii) Language independence (2 marks)
  - (iii) Location transparency (2 marks)
  - (iv) Concurrency management (2 marks)
  - (v) Versioning support (2 marks)

### Question Four

- a) Discuss the fundamental differences between component oriented and objected oriented within the listed qualities below:
  - (i) Building blocks versus Monolithic application (4 marks)
  - (ii) Interfaces versus Inheritance (4 marks)
- b) When we discuss COP, we require that components are in binary form and to be independently deployable. Discuss why these requirements are essential for COP. (12 marks)

### Question Five

- a) Describe the protocol stack for web service. (3 marks)
- b) Describe the difference between XML and HTML. (3 marks)
- c) Discuss web services composition versus web service conversation (3 marks)
- d) Discuss the connection model of web services. (11 marks)