FINAL EXAM
FIRST SEMESTER SESSION 2011/2012

COURSE CODE / NAME : STIW3063/ COMPONENT-BASED DEVELOPMENT
DATE : 8 JANUARY 2012 (SUNDAY)
TIME : 9.00 – 11.30 AM (2 ½ HOURS)
VENUE : DTSO

INSTRUCTION :

1. This question booklet contains SEVEN (7) questions in TWO (2) printed pages excluding the cover page.
2. Answer ALL questions in the answer sheet provided.
3. You are NOT ALLOWED to remove the exam paper from the examination hall.

MATRIC NO : ____________________________                    ________
            ( with word )                        ( with number )
IDENTIFICATION CARD NO. :

LECTURER : ____________________________

GROUP :  ________   TABLE NO. :  ________

DO NOT OPEN THIS EXAMINATION PAPER UNTIL INSTRUCTED

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ANSWER ALL QUESTIONS.

1. a. Differentiate between software processes and software methodologies. (6 marks)

b. Among the disadvantages of component-based software development are as mentioned in (i) and (ii). Explain what those statements mean.
   i. Compromises in requirements are needed (2 marks)
   ii. Less control over the system’s evolution (2 marks)

2. a. Describe the following types of software development and name the outcomes.
   i. Software development for reuse (5 marks)
   ii. Software development with reuse. (5 marks)

b. The following are two definitions of a component. Based on given definitions, discuss TWO (2) similarities and TWO (2) differences that a component might constitute.

   i. "A component is a software element that conforms to a component model and can be independently deployed and composed without modification according to a composition standard."

   ii. "A component is a unit of composition with contractually specified interfaces and explicit context dependencies only. It can be deployed independently and is subject to composition by third parties."

   (8 marks)
3. Component model is one of the important elements in component-based development.
   a. What is component model? (2 marks)
   b. Name and describe the purpose of FOUR (4) basic elements of a component model. (8 marks)
   c. The existence of various component models can be problematic. Give THREE (3) reasons to illustrate the situation. (10 marks)

4. The following questions are related to qualified components.
   a. Explain the meaning of a qualified component. (2 marks)
   b. How do the qualified components be obtained? (10 marks)

5. a. Component adaptation is required because very rarely will components integrate immediately with the system. Explain the following component adaptation activities: (10 Marks)

   b. System Integration and system verification and validation are among the activities involved in component-based development. Explain both activities within the context of component-based development. (10 marks)

6. Relate the importance of the following real-world processes in the context of component distribution:
   a. Component catalogue (5 marks)
   b. Component acquisition (5 marks)

7. From the perspective of flexibility and maintainability of systems, discuss how component-based development (CBD) could achieve the following benefits of software development: reduce costs, rapid development, and reduce maintenance burden. (10 marks)

END OF QUESTIONS