STIW3063  CONFIDENTIAL

FINAL EXAM
SECOND SEMESTER SESSION 2011/2012

COURSE CODE / NAME : STIW3063/COMPONENT-BASED DEVELOPMENT
DATE : 12 JUNE 2012 (TUESDAY)
TIME : 2.30 – 5.00 P.M. (2 ½ HOURS)
VENUE : DSB K. MAS

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 IN THE ANSWER SHEETS PROVIDED.

1.a. Show the relationships among the concepts of software engineering, software process, software methodology, and component-based development and define those concepts.  

(12 marks)

b. Describe TWO (2) differences between software component development and component-based development.  

(8 marks)

2. Analyze the following component definitions. Discuss briefly ONE (1) similarity and ONE (1) difference of the definitions in terms of design and deployment.

   i. "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 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 development.

   a. Describe a component model and give TWO (2) examples of component model.  

(5 marks)

   b. Name and describe the purpose of FOUR (4) basic elements of a component model.  

(8 marks)

   c. Various component models use different component standards. Discuss TWO (2) reasons for the difficulties faced in using various component models in component-based development.  

(10 marks)
4. In general, all selected components must undergo the process of component qualification. 
   a. Describe the process and its purpose. (10 marks)

   b. Describe the outcome of the component qualification process. (5 marks)

5. Based on the following V development process for component-based development, discuss THREE (3) differences of this process from the conventional software development life cycle for the system design and integration phases. (15 marks)

6. Within the context of component distribution, describe the importance of the following:
   a. Component catalogue (5 marks)

   b. Component acquisition (5 marks)

7. The aims of component-based development (CBD) are to increase reusability of existing components. However, there are also drawbacks to this approach. With respect to implementation and system verification, discuss the adjustments required on the development processes. (9 marks)

END OF QUESTIONS