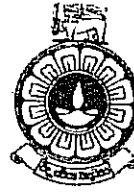


The Open University of Sri Lanka  
B.Sc. Degree Program – Level 05  
Final Examination 2006  
CSU3277: Software Engineering: Paper II  
Duration: 2½ Hours



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Date: 07.11.2006

Time: 1.00 pm – 3.30 pm

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Answer **FOUR** questions **ONLY**

(01)

- (a) What is the purpose of a *feasibility study* and why is it so important in *systems development*?
- (b) When is *prototyping* most suitable in the process of *software development*? State two disadvantages of this technique.
- (c) How could *Prototyping* be used to improve the *quality* of requirements? What benefits do the *users* get from prototyping?
- (d) Describe the two *prototyping techniques* indicating their similarities and differences.

(02)

- (a) There is a set of *problems* which is associated with the software industry. Describe these problems.
- (b) Give three important examples of *qualities* which you would expect from a software product and justify why these qualities are important.
- (c) What are the issues that need to be considered during the *implementation phase* of a project?
- (d) What possible approaches to data migration might be considered for a Banking System, assuming the bank account details must be available at all times.

(03)

- (a) Explain why it is necessary to have a good *design* in software development.
- (b) *Coupling and cohesion* are two concepts which should be considered in *developing software modules*. Explain them very briefly.
- (c) Give the levels of cohesion and coupling in the order of the *most desirable* level to the most *undesirable level*.
- (d) Why are highly cohesive components desirable?

(04)

- (a) A bank branch does business with many customers. Each customer holds one or more accounts and each of them may hold many bank cards. Each card is owned by the bank branch and each card may have transactions with several accounts.

Draw an Entity Relationship Diagram for this problem.

- (b) The bank branch handles the major system function, *New Customer*, as three sub functions namely: *Create Customer*, *Create Card* and *Create account*. Customer personal details and the account details are stored separately.

Draw a DFD for the function *New Customer*.

(05)

- (a) Outline the steps involved in the *Michael Jackson Program Design* method.

- (b) A product file contains a number of product records. Each record contains an area code, a district code, a product code and a value. The file is sorted into product within district within area. A program is required to select certain product codes and produce a report showing district and area totals of the values of the selected products in the order implied by the product file.

Draw two *logical data structures* and show the correspondences between them. Hence, derive a *program structure* for the above problem.

(06)

- (a) What is the main difference between *Static Testing* and *Dynamic Testing*?

- (b) Distinguish between *Code Inspections* and *Code walkthroughs*?

- (c) In a particular software project, all modules have undergone *Unit Testing* and they work well. Do we still need to have *Integration Testing*? Justify your answer.

- (d) Following the completion of the development of a new software system, the existing manual system is replaced by the new system. Describe the main methods of changing over from an existing system to a new computer based system and the advantages and disadvantages of these methods.

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