



# THE UNIVERSITY OF THE WEST INDIES

MONA

EXAMINATION OF APRIL/MAY 1999

Code and Name of Course: **CS22Q – SOFTWARE ENGINEERING**

Paper:

Date and Time: **TUESDAY MAY 4, 1999: 4.00 - 6.00 P.M.**

Duration: **2 HRS**

INSTRUCTIONS TO CANDIDATES: This paper has **2** page(s) and **4**

questions

**ANSWER QUESTION 1 AND ANY TWO (2) OTHERS**

## QUESTION 1

- a) It has been claimed that "*In spite of its known deficiencies, some variant of the waterfall model will continue to be the process model used in most large software projects.*"

Discuss these deficiencies. Do you agree with the statement? Give reasons.

**[12 MARKS]**

- b) *If it is the user who the software is being developed for, then the software should simply be developed according to what the user wants.*

Discuss some of the problems that will be experienced if this method is adapted.

**[10 MARKS]**

- c) Explain why the intangibility of software systems poses special problems for software project management. Discuss some of the ways that these problems could be reduced.

**[8 MARKS]**

## QUESTION 2

- a) *Assume you are working in a company as a software engineer. There is a need to do some maintenance and the manager is asking you to try and determine the cost of this maintenance.* Discuss some of the factors that you would consider to be important in determining this cost.

**[9 MARKS]**

- b) *Evolutionary prototyping should never be used as a software development model as it will lead to code that is difficult to maintain.*

Discuss this statement.

**[6 MARKS]**

### QUESTION 3

- a) Discuss the difference between verification and validation. If the software is designed according to the requirement specification, which is developed from interaction with the user, why do we need to distinguish between the two? Give reasons. [7 MARKS]
- b) Explain the purpose of inheritance as it relates to the object-oriented paradigm. What are the arguments for/against using inheritance in the design process? Use examples to illustrate your points. [8 MARKS]

### QUESTION 4

- a) Given the information in the table below, draw the activity network for the project. Each milestone should have both the earliest completion date (at the top) and the latest completion date (at the bottom). Identify the critical path. Assume that the total number of days includes the actual duration and a contingency factor. [10 MARKS]

TASK	TOTAL DURATION (DAYS)	DEPENDENCIES
T1	5	-
T2	8	T1:T3
T3	10	-
T4	5	T3
T5	10	T3
T6	15	T4: T5
T7	15	T2: T4
T8	10	T7
T9	5	T6
T10	5	T8:T7

**Note:** Take the start date to be the 1<sup>st</sup> June 1999.  
30 days for April, June, September, November;  
28 days for February;  
31 days for the rest of the months.

- b) Assume that you are working as a software engineer at a company. The manager comes to you because he is concerned about the year 2000 problem. Discuss some of the issues that you would recommend that the manager address, in order to be ready for the year 2000? [5 MARKS]