

PRINCE OF SONGKLA UNIVERSITY
FACULTY OF ENGINEERING
Department of Computer Engineering

Midterm Examination: Semester 2

Academic Year: 2004-2005

Date: 22nd December, 2004

Time: 13:30 – 15:30 (2 hours)

Subject Number: 240-321

Rooms: R200 and R201

Subject Title: Advanced Computer Programming Techniques

Lecturer: Aj. Andrew Davison

Exam Duration: 2 hours

This paper has 2 pages.

Authorized Materials:

- Writing instruments (e.g. pens, pencils).
- Books (e.g. dictionaries) and calculators are **not** permitted.

Instructions to Students:

- *Answer questions in English.* Perfect English is **not** required.
- Attempt all questions.
- Write your answers in an answer book.
- Start your answer to each question on a new page
- Clearly number your answers.
- Any unreadable parts will be considered wrong.
- When writing programs, use good layout, and short comments; marks will not be deducted for minor syntax errors.
- The marks for each part of a question are given in brackets (...).

Question 1

(20 marks; 20 minutes)

Describe in words the main *advantages* and *disadvantages* of Java. Answer in point form. Code examples should **not** be included.

Question 2

(50 marks; 50 minutes)

- a) What are the differences between a class and an object? (20)
- b) Explain *extends* in Java. (20)
- c) What are the main *differences* between the `String` and `StringBuffer` classes? (10)

Each answer should include diagrams and code fragments where possible.

Question 3

(50 marks; 50 minutes)

- a) Explain in words the *six* steps for creating a `JFrame` GUI in Java.
Note: do not include any Java code. (10)
- b) Write a Java Swing **application** which contains three text fields. The user enters an integer into the first field, another integer into the second field, and the application reports if the first number is a multiple of the second. The report is written into the third text field. Any error messages should also be placed in the third text field.

Comment your code to show where the six steps of part (a) appear. (35)
- c) Draw an *event model diagram* for your program of part (b). (5)

--- *End of Examination* ---