

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF APPLIED SCIENCE
COMPUTER SCIENCE DEPARTMENT
APRIL EXAMINATIONS 2009

SUBJECT: OBJECT ORIENTED PROGRAMMING
CODE: SCS 4102

Instructions to candidate:

1. Answer any four questions. Paper contains five questions.
2. All programming questions to be answered in java

3 HOURS

QUESTION ONE

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|----------------------------------------------------------------------|-----|
| a) Differentiate between Cohesion and Coupling | [5] |
| b) Java does not strictly implement multidimensional arrays. Explain | [3] |
| c) Differentiate between a static method and a non-static method | [5] |
| d) What is an instance variable | [5] |

QUESTION TWO

- | | |
|-----------------------------------------------------------------------------------------------|------|
| a) In detail what is the difference if any between an Interface and an Abstract class in java | [10] |
| b) What is the importance of Exception handling in java | [5] |
| c) Write a method that reads data from a text file | [5] |
| d) Write a method that writes data to a text file | [5] |

QUESTION THREE

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|--------------------------------------------------------------------------------|-----|
| a) What is the purpose of threads in java | [6] |
| b) What is the importance of the java native application programming interface | [6] |
| c) Differentiate between a process and a thread giving appropriate examples | [5] |
| d) Differentiate between swing and application windows toolkit packages | [8] |

QUESTION FOUR

Write a complete program which simulates the Rivest, Shamir, Adleman , RSA algorithm. Including methods to perform the three stages of key generation, encryption and decryption. It should prompt the user for inputs. Clearly state any assumptions [25]

QUESTION FIVE

The image shows a graphical user interface for a simple multiplier application. The window has a title bar that says "SIMPLE MULTIPLIER". Inside the window, there are three text input fields arranged vertically. The first field is labeled "FIRST VALUE", the second is labeled "SECOND VALUE", and the third is labeled "RESULT VALUE". Below these fields, there are three buttons: "CALC", "CLEAR", and "CLOSE". The "CALC" button is on the left, "CLEAR" is in the middle, and "CLOSE" is on the right. The entire interface is set against a light gray background.

Write a program that will produce the above panel which is a simple multiplier accepting two integer arguments and displaying the result when the “*calc*” button is clicked. The “*clear*” button clears the textfields and the “*close*” button close the application [25]

END OF QUESTION PAPER

