



GRETSA UNIVERSITY - THIKA

UNIVERSITY EXAMINATIONS MAY - AUGUST 2018 SEMESTER

BACHELOR OF SCIENCE COMPUTER SCIENCE

COURSE CODE: BSCS 205

COURSE TITLE: OBJECT ORIENTED PROGRAMMING

DATE: 6TH AUGUST 2018

TIME: 3.00 PM – 6.00 PM

INSTRUCTIONS TO CANDIDATES

1. SECTION A IS **COMPULSORY**.
2. SECTION B: ANSWER ANY OTHER **THREE** QUESTIONS.
3. **DO NOT** WRITE ANYTHING ON THIS QUESTION PAPER AS IT WILL BE AN EXAM IRREGULARITY.
4. ALL ROUGH WORK SHOULD BE AT THE BACK OF YOUR ANSWER BOOKLET AND CROSSED OUT.

CAUTION: *All exam rooms are under CCTV surveillance during the examination period.*

SECTION A: COMPULSORY

Question One

- a) The gross salary of employees in SUPREME ENTERPRISES is based on basic salary and additional benefits as follows
- Employees who have worked for the company for more than 10 years receive an additional pay of 10% to their basic salary
 - Monthly salary bonus based on monthly sales of books as follows

Monthly sales	Bonus Rate (%)
Above 1,000 000	15
Between 1,000 000 and 500 000	10
Between 250 000 and 500 000	5
Below 250,000	3

Required

- Write a C++ program that would be used to calculate the gross salary then output each employees name, basic salary, gross salary and all benefits **[15 marks]**
- b) Define a variable and State any four rules that must be followed in naming variables in C++ programming **[7 marks]**
- c) A Makini investment pays an interest of 12% per annum on member deposits. Write a C++ program that accepts the customer name, deposits and duration in years then calculates and displays the total deposits at the end of the duration. Note: all the deposits at the end of the year are carried over to the next year and the new amount becomes the deposit for the next year. **[10 marks]**
- d) Write a C++ program that prompts the user to enter three numbers then displays the largest **[8 marks]**

SECTION B: ANSWER ANY THREE QUESTIONS

Question Two

- a. Discuss the following object oriented programming concepts
- Encapsulation **[2marks]**
 - Inheritance **[2marks]**
 - Polymorphism **[2marks]**
 - Object **[2marks]**
 - Class **[2marks]**
- b. Discuss any 5 benefits of Cpp programming **[10marks]**

Question three

- a. Discuss the three main control structures in programming, giving examples in each case
[10marks]
- b. What is a function? Discuss the format of a C++ function. give an appropriate example
[10marks]

Question Four

- a. Outline the major challenges facing software industry. Explain how object oriented technology can help to tackle such problems
[6marks]
- b. Describe any three features that distinguish between C programming and C++ programming
[6marks]
- c. Write a C++ program that prompts the user to enter three numbers then displays the largest
[8marks]

Question five

- a) Write a cpp program that will calculate the volume of a cylinder ($\text{Vol} = 3.142 \times r \times h$) where r is the radius and h is the height.
[10 marks]
- b) Discuss any five fundamental concepts of cpp programming
[10marks]