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MOSHOOD ABIOLA POLYTECHNIC, ABEOKUTA
DEPARTMENT OF COMPUTER SCIENCE
2023/2024 FIRST SEMESTER EXAMINATION

COURSE TITLE: COMPUTER PROGRAMMING USING C++

COURSE CODE: COM 313

COURSE UNIT: 3

CLASS: HND I COMPUTER SCIENCE (FT & PT)

TIME: 3 Hours

INSTRUCTION: ATTEMPT ANY FOUR QUESTIONS IN SECTION A AND ONE IN SECTION B.

SECTION A

- 1(a) What are the significances of *CPre*, *C-with-Classes*, *Simular 67*, *C-front* and *1979* in the historical development of C++? (10marks)
- (b) Itemize with brief explanation the four pillars of Object-oriented development supported by C++ as an Object-oriented programming language. (10marks)
- 2(a) With the aid of a simple program, describe the structure of a C++ program. (10marks)
- (b) What are Identifiers, keywords and whitespaces within the context of programming using C++ language? Hence itemize four rules to be obeyed in inventing valid identifiers in C++. (10marks)
- 3(a) What are Variables, Pointers and Structures? Hence differentiate between *Variable Definition* and *Variable Declaration* in C++. (10marks)
- (b) There are three regions where variables can be declared: local, formal and global. Explain. (5marks)
- (c) Define Array within the context of computer programming and describe its format of use or declaration. (5marks)
- 4(a) What is Control Structure? Hence describe how the following iterative control structures are being used (format) in software development using C++ language? : (10marks)
- (i) While loop (ii) For loop (iii) do..while loop.
- (b) Differentiate between *Call by value* and *Call by reference* in using function to represent different identifiable subtask in C++ programming. (5marks)
- (c) List at least five (5) out of seven basic C++ primitive data-types known to you with brief explanations. (5marks)
- 5(a) Write short notes on the following OOP characteristics: Object, Class, Methods and instance Variables (10marks)
- (b) What are C++ Operators? Describe four (4) Operators commonly used in C++ program out of many the language has been enriched with. (10marks)

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for (i = 0;

SECTION B

QUESTION 1:

(a) Write a C++ program to calculate an area of 3 rectangles of the following lengths and breaths 12cm, 22cm, 44cm and 10cm, 6cm, 15cm respectively. (10marks)

(b) Write a C++ program to calculate the sum of the series below using function

$$(1+x)^n = 1 + \frac{nx}{1!} + \frac{n(n-1)x^2}{2!} + \dots$$

(10marks)

QUESTION 2:

(a) Three people ate in a restaurant and want to split their bills. The total bill is ₦5000 and they want to leave a tip of 5% to the attendant. Write a C++ program to determine how much each of them will pay? (10marks)

(b) Write a C++ program to sort set of 10 integer numbers in ascending order. (10marks)