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# UNIVERSITY EXAMINATIONS

## 2019/2020 ACADEMIC YEAR

### FIRST YEAR SECOND SEMESTER EXAMINATION

### MAIN EXAMINATION

## FOR THE DEGREE OF BACHELOR OF COMPUTER SCIENCE

**COURSE CODE: COM 121**

**COURSE TITLE: PROCEDURAL PROGRAMMING 1**

**DATE: 13<sup>TH</sup> OCTOBER, 2020**

**TIME: 2.00 PM – 5.00 PM**

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### INSTRUCTION TO CANDIDATES

- SEE INSIDE

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COM 121: PROCEDURAL PROGRAMMING 1

STREAM: BSc (Computer Science)

DURATION: 3 Hours

**INSTRUCTIONS TO CANDIDATES**

- i. Answer *ALL* questions from section A and any *THREE* from section B.
- ii. Maps and diagrams should be used whenever they serve to illustrate the answer.
- iii. Do not write on the question paper.

**SECTION A (24 MARKS) COMPULSORY**

**QUESTION ONE [12 MARKS]**

- a. Define the following terms:
- i. Computer programming
  - ii. Procedural Programming
  - iii. Compiler
  - iv. Program
  - v. Algorithm
- [10 Marks]
- b. With the aid of examples, describe the term whitespaces [2 Marks]

**QUESTION TWO [12 MARKS]**

- a. Write a simple C++ program that outputs "ALUPE UNIVERSITY COLLEGE"[4 Marks]
- b. Explain the following terms as used in Procedural Programming [8 Marks]
- i. Data types
  - ii. Syntax Error
  - iii. Logical errors
  - iv. Debugging

**SECTION B [36 MARKS]**

**QUESTION THREE [12 MARKS]**

- c. Explain the meaning of an identifier with respect to C++. [2 Marks]
- a. Describe the following concepts in relation to the C++ Programming Language
- i. Dynamic Memory Allocation
  - ii. Array
  - iii. Pointer
  - iv. Object
- [8 Marks]

#### QUESTION FOUR [12 MARKS]

a. The C++ standard libraries provide an extensive set of input/output capabilities. If bytes flow from a device like keyboard, a disk drive, or a network connection etc. to main memory, this is called input operation and if bytes flow from main memory to a device like a display screen, a printer, a disk drive, or a network connection, etc, this is called output operation. Explain each of the following I/O Library Header Files.

- i. `iostream`
- ii. `iomanip`
- iii. `fstream`

[6 Marks]

b. Define the following concepts as used in programming

[6 Marks]

- i. Variables
- ii. Constants
- iii. Control structures

#### QUESTION FIVE [12 MARKS]

a. Write down the results of the following code when compiled and executed [12 Marks]

```
1.      #include <iostream>
2.      // Function declaration
3.      void func(void);
4.      static int count = 10; /* Global variable */
5.      main()
6.      {
7.      while(count--)
8.      {
9.      func();
10.     }
11.     return 0;
12.     }
13.     // Function definition
14.     void func( void )
15.     {
16.     static int i = 5; // local static variable
17.     i++;
18.     std::cout << "i is " << i ;
19.     std::cout << " and count is " << count << std::endl;
20.     }
```

**QUESTION SIX [12 MARKS]**

- a. Write an algorithm to find out if a number is odd or even. **[8 Marks]**
- b. Draw a flowchart for the algorithm in a. above **[4 marks]**

**QUESTION SEVEN [12 MARKS]**

- a. Explain the following types of programming languages. **[8 Marks]**
  - i. Machine languages
  - ii. Assembly languages
  - iii. High-level languages
  - iv. System languages

b. Consider the following short program:

```
1. #include <iostream>
2. int main(void)
3. {
4.     cout << "Welcome to the C++ World!";
5.     return 0;
6. }
```

Explain each of the six lines in the program. **[4 Marks]**

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