

**PAN AFRICA CHRISTIAN UNIVERSITY
EXAMINATIONS PAPER**



PAN AFRICA CHRISTIAN UNIVERSITY

BACHELOR OF BUSINESS INFORMATION TECHNOLOGY

END OF SEMESTER EXAMINATION

DEPARTMENT: COMPUTING AND INFORMATION TECHNOLOGY

COURSE CODE: BIT104

COURSE TITLE: INTRODUCTION TO COMPUTER PROGRAMMING

EXAM DATE: FRIDAY , 8TH DECEMBER, 2017

TIME: 9.00AM – 12.00 PM

INSTRUCTIONS

- This exam script has **TWO (2)** sections.
- Read all questions carefully before attempting.
- Answer All questions in Section **A** and any other Four questions in Section **B**.
- Write your **student number** on the answer booklet provided.

SECTION A

(Answer ALL questions in this section)

QUESTION ONE

- I. Define the following concepts (4 Marks)
- a. Programming
 - b. Programming language
 - c. Keywords
 - d. Comments
- II. List **THREE** rules which should be followed while giving variable names. (3 Marks)
- III. Explain the importance of variable declaration in computer programming. (2 Marks)
- IV. Write a C program that can compute the area of a circle that uses the concept of functions. (6 Marks)
- V. Explain the advantage of using an array over atomic variables (2 Marks)
- VI. Explain the following programming constructs (3 Marks)
- i. Sequence
 - ii. Looping
 - iii. Branching

SECTION B: CHOOSE ANY TWO QUESTIONS

QUESTION TWO (20 MARKS)

- I. "Do-while" and "while" loops are used in a case where statements are to be executed in a repeated manner until a given condition is met. Justify this by writing two different programs using the two types of loops to display integers from 1 to 10. (6 Marks)
- II. Discuss the two types of comments as used in C programming (4 Marks)
- III. Using the concept of arrays and loops write a program that captures code, description, quantity, and price. The program should calculate the subtotal and prints out the receipt (10 Marks)

Question Three (20 Marks)

- I. Write a program that captures Marks for five subjects calculates the sum and average, grades the student based on average and print out the results slip. The grading is as below. (10 Marks)
- ≥ 70 A
60-69 B
50-59 C
40-49 D
 < 40 E
- II. Discuss the following types of operators while giving three examples in each case as used in C programming (6 Marks)
- a. Arithmetic operators
 - b. Relational operators
 - c. Logical operators
- III. Suppose a, b, c are integer variables that have been assigned the values a = 8, b = 3 and c = - 5, and x, y, z are floating point variables with values x = 8.8, y = 3.5, z = -5.2. Determine the value of each of the following expressions while showing all the steps followed by the C++ compiler: (4 Marks)
- i) $2 * b + 3 * (a - c)$
 - ii) $(a * c) \% b$
 - iii) $x / y + z$
 - iv) $b \% y$

QUESTION FOUR (20 Marks)

- I. Explain the two types of functions as used in C programming (4 Marks)
- II. Using the "pow ()" function, write a C program that computes the square and cube of the integers from 1 to 10. (4 Marks)
- III. Write a program that calculates the sum and difference of two integers entered through the keyboard. The computational expression should be put in different user-defined functions. Do not use function prototypes. (10 Marks)
- IV. Using an example explain various parts of function definition (2 Marks)

QUESTION FIVE (20 Marks)

- I. Discuss desirable characteristics of an algorithm (6 Marks)
- II. Differentiate between I++ and ++I using an example (4 Marks)
- III. Write a program that captures values between 1-7 and returns the day of the week using the switch case statement. For example 1-Monday, 2 –Tuesday, etc. (5 Marks)
- IV. Using a structure in C write a program that will request for the input of distance and time taken by a car in meters and calculate the speed in KM/H, (5Marks)

QUESTION SIX (20 Marks)

- I. Explain any four advantages functional programming (8 Marks)
- II. Variable and constants are used in programming. Differentiate the two while giving an example of each one of them. (2 Marks)
- III. Write a C Program that finds the largest number of three numbers (10 Marks)

QUESTION SEVEN (20 Marks)

- I. Write a program that determines if a person is eligible to vote. One can only vote is has attained the age of 18 years. (5 Marks)
- II. Using C code briefly explain any five data types used in C programming (5 Marks)
- III. Write a program that captures the name of the employee, the basic salary, transport allowance and airtime allowance. The program should calculate the gross salary and print out a payslip as below (10 Marks)

```
Enter name: Mike
Enter Basic Salary: 23000
Enter HRA: 9500
Enter D.A.: 9500

Name: Mike
BASIC: 23000.000000
HRA: 9500.000000
DA: 9500.000000
PF: 2760.000000
***GROSS SALARY: 44760.000000 ***
```

EOF