Mid-West University

Examinations Management Office

Final Examinations -2082

Bachelor level/BIT/I Semester
Time: 3 hrs.
Subject: Fundamentals of Programming (BIT414)

Full Marks: 60
Pass Marks: 30

Candidates are required to give their answers in their own words as far as practicable. Figures in the margins indicate marks.

Group A

Very short questions (Attempt all) **[8 x 2 = 16]**

1. What is a constant? Declare a constant to represent the value of pi (π).
2. Explain the purpose of the break and continue statements.
3. Draw a flowchart to find the largest of three numbers.
4. Define pointer with an example.
5. List any two advantages of using functions.
6. What is the output of the following code snippet?

```
int a = 5;
printf("%d", a++ + ++a);
```

7. What is the difference between do-while and while loop?
8. Write the syntax to declare a structure named 'Book' with fields title, author, and price.

Group B

Short answer questions (Attempt any five) **[5 x 4 = 20]**

9. Write a program to check whether a number is prime or not.
10. Write a program to count number of vowel letters in a string.
11. Write a program to find sum of square of digits of a given number.
12. Write a program to find factorial of number using recursion.
13. Differentiate between structure and union.
14. Explain function call by reference with an example.

Group C

Long answer questions (Attempt any three) **[3 x 8 = 24]**

15. What are arrays? Explain how one-dimensional and two-dimensional arrays are declared and used. Write a program to add two 3×3 matrices.
16. Write a program with the following menu:

```
MENU
----------
1. ADD
2. SUBTRACT
```

3. MULTIPLY
4. DIVIDE
5. EXIT

Ask the user to choose an option (1-5). For options 1-4, ask for two numbers and display the result (sum, difference, product, or quotient). If the user enters 5, terminate the program.

17. Write a program to create a file that stores information about students (name, roll, marks), and another program to read and display the records.

18. Define a structure named **Complex** to represent complex numbers. Write a program that:

a. Reads two complex numbers from the user,
b. Performs addition and subtraction of these two complex numbers, and
c. Displays the results of both operations.

~ End ~