Professional Course Examination, May 2023

(2nd Semester)

BACHELOR OF COMPUTER APPLICATIONS

(Programming Language through C)

Full Marks : 75

Time : 3 hours

The figures in the margin indicate full marks for the questions

(PART : A—OBJECTIVE)

(*Marks* : 25)

SECTION—I

(*Marks* : 15)

A. Tick (✓) the correct answer in the brackets provided :   1×10=10

1. What is right way to initialization of array?

    (a) int num[6] = {2, 4, 12, 5, 45, 5};   (   )

    (b) int n{ } = {2, 4, 12, 5, 45, 5};   (   )

    (c) int n{6} = {2, 4, 12};   (   )

    (d) int n(6) = {2, 4, 12, 5, 45, 5};   (   )

2. The symbol || is used to represent logical

   (a) AND   (   )

   (b) OR   (   )

   (c) NOT   (   )

   (d) NAND   (   )

3. The ?: operator is known as

   (a) arithmetic   (   )

   (b) conditional   (   )

   (c) binary   (   )

   (d) loop   (   )

4. The field specification for reading an integer number is

   (a) % c   (   )

   (b) % f   (   )

   (c) %1f   (   )

   (d) % d   (   )

5. What will be the result of 9% 2 in a C program?

   (a) 0   ( )

   (b) 1   ( )

   (c) 2   ( )

   (d) 4   ( )

6. What is the output of the following?

```
int main( )
    {
        int x=10;
        {
            int x=0;
            printf ("%d", x);
        }
        return 0;
    }
```

   (a) 10   ( )

   (b) Compilation error   ( )

   (c) 0   ( )

   (d) Undefined   ( )

7. Which of the following is the correct syntax to send an array as a parameter to function?

   (a) func(&array);   ( )

   (b) func(#array);   ( )

   (c) func(*array);   ( )

   (d) func(array[size]);   ( )

8. What is the output of the following program?

```
#include<stdio.h>
int main()
{
    char c;
    FILE *fp;
    fp=fopen("demo.txt", "r");
    while((c=fgetc(fp))!=EOF)
    printf("%c", c);
    fclose(fp);
    return 0;
}
```

   (a) It will print the content of file till it encounter new line character   (   )

   (b) It will print the content of file demo.txt   (   )

   (c) Compilation error   (   )

   (d) Undefined   (   )

9. A pointer is

   (a) a keyword used to create variables   (   )

   (b) a variable that stores address of other variable   (   )

   (c) a variable that stores address of an instruction   (   )

   (d) All of the above   (   )

10. The size of a union is determined by the size of the

   (a) first member in the union   (   )

   (b) last member in the union   (   )

   (c) biggest member in the union   (   )

   (d) sum of the sizes of all members   (   )

B. Indicate whether the following statements are *True (T)* or *False (F)* by putting a Tick (✓) mark in the brackets provided : 1×5=5

1. When declaring character arrays, we must allow one extra element space for the null terminator or null character '\0'.

(T / F)

2. Price$ is valid for naming a variable.

(T / F)

3. The modulus operator % can be used only with integers.

(T / F)

4. The link between a member and a variable in a structure is established using a dot '.' operator.

(T / F)

5. fseek( ) is used to read a character from a file.

(T / F)

SECTION—II

(*Marks* : 10)

C. Answer the following questions : 2×5=10

1. *(a)* What is a keyword in C language?

OR

(b) Explain the working of the address operator (&).

2. *(a)* Explain a conditional operator.

OR

(b) Mention two conditions we need to follow for naming a variable.

3. *(a)* Write any two advantages of using a function.

OR

(b) What are relational operators? List the different types of relational operators.

4. *(a)* What is a two-dimensional array?

OR

(b) What is the difference between structure and array?

5. *(a)* What is a Union?

OR

(b) What is the difference between library functions and user-defined functions?

(PART : B—DESCRIPTIVE)

(*Marks* : 50)

D. Answer the following questions : 10×5=50

1. *(a)* What is a variable? Explain the basic format for declaring a variable. 2+3=5

(b) What are increment and decrement operators? Mention the difference between pre and post in ++ and –– operators. 2+3=5

OR

2. *(a)* What is data type? Explain the different classes of data type. 1+3=4

(b) What are the rules for precedence in evaluation of expressions using arithmetic operators? What will be the output for $9 - ((12 / 3) + 3 * 2) - 1$ in C language? 2+4=6

3. *(a)* Explain the structure of 'for' loop. Write a program to show the use of for loop. 2+3=5

(b) Explain the syntax for the switch statement with a sample program. 5

OR

4. *(a)* Mention the difference between 'while' and 'do while' loops. 4

(b) Write a simple program using ELSE IF ladder to display the result of a student according to the marks input through the keyboard : 6

80–100 Marks : Distinction

60–79 : First Division

50–59 : Second Division

40–49 : Third Division

0–39 : Fail

5. *(a)* What are user-defined functions? Explain the syntax for declaring a function. How is it called from the main function? 2+2+1=5

(b) What is the difference between function call by value and call by reference? 5

OR

6. *(a)* Explain any two categories of functions. 5

(b) Explain the four types of storage classes. 5

7. *(a)* What is an array? How will you declare and initialize 2D array? 2+3=5

(b) Write a C program to transpose a matrix. 5

OR

8. *(a)* What is a pointer? How do you declare and initialize a pointer?

    2+3=5

    (b) Write a program to show how a pointer can be used to traverse or access an array element using the concept of pointers and arrays.   5

9. *(a)* Write a C program to print details of a student like r_no, name, address, phone_no on screen using structure.   5

    (b) What is a file? Explain any four various operations on file.   1+4=5

OR

10. *(a)* What is an array of structures? Support your answer with suitable example.   2+3=5

    (b) Write the syntax and explain with example the uses of fopen( ) and fclose( ) file functions.   5

★ ★ ★