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Roll No. 23 92192

# **TBC-102/ TBD-102**

**B. C. A./B. C. A. (AI & DS)**

**(FIRST SEMESTER)**

**END SEMESTER**

**EXAMINATION, Dec., 2023**

**FOUNDATIONS OF COMPUTER  
PROGRAMMING**

**Time : Three Hours**

**Maximum Marks : 100**

- Note :** (i) All questions are compulsory.
- (ii) Answer any *two* sub-questions among (a), (b) and (c) in each main question.
- (iii) Total marks in each main question are **twenty**.
- (iv) Each sub-question carries 10 marks.
1. (a) What do you mean by structured programming ? What is its approach in programming ? Explain its merits and demerits. (CO1)

**P. T. O.**

- (b) (i) What do you mean by operator precedence and associativity of the operator ? Explain with example.

(CO1)

- (ii) What will be the output of the following snippet and why ?

```
int main()
{
    char* p="Hello\n";
    printf(p);
    printf("Hello" "Reader!");
    return 0;
}
```

- (c) What is an operator ? What is the use of bitwise operators ?

(CO1)

(i)  $5 != 10 \ \&\& \ 2 \ || \ 365$

(ii)  $2 << 2 > 2$

(iii)  $\text{num} << (2 << 2), \text{num} = 3$

(iv)  $\text{int } i=0, j=1, k=2, m;$

$m = i \ \&\& j++ \ \&\& k++;$

2. (a) WAP to find the sum of series

$$1^2 + 2^2 + 3^3 + \dots + n. \quad (\text{CO2})$$

- (b) Write short notes on the following : (CO2)

(i) Syntax error and logical error

(ii) Compiler and interpreter

(iii) Loop in C

- (c) Write a program in 'C' to draw the following pattern : (CO2)

```
      *
    * * *
  * * * * *
* * * * * *
```

3. (a) (i) What is a function ? Explain function definition, function prototype. What is the advantages of using function ?

- (ii) WAP in C to find the area of the circle using function with return type and passing argument. Assume function name `circle_area ( )`. (CO3)

(b) Write in detail about storage classes in C mentioning their place of storage, default and initial value, scope and life of each of them. (CO3)

(c) What is pointer in C ? Explain call by value and call by reference with example. (CO3)

4. (a) (i) What is an array in C ? What are the advantages and limitations of an array ?

(ii) WAP to find the sum of array elements. (CO4)

(b) Write a program in C to find out the addition of 3\*3 matrices. (CO4)

(c) Explain the following functions with example : (CO4)

(i) strcat( )

(ii) strcmp( )

(iii) strcpy( )

(iv) gets( ) and puts( )

(v) getch( )

5. (a) (i) Explain structure in C. What is the difference between structure and union ? (CO5, CO6)
- (ii) Write a program to create an array of structure to hold records of three students. Each record contains rollno, name, and array of marks of 3 subjects.
- (b) (i) List the various file operation in 'C'. Write a C program to copy the content of one file to another file. (CO5, CO6)
- (ii) Write short note on any *two* of the following with example :
- (1) Macros
  - (2) File inclusion
  - (3) Conditional compilation
- (c) What is recursive function ? Write a program in C to print the factorial of number N using recursion. (CO5, CO6)