

B.TECH.
(SEM I) THEORY EXAMINATION 2022-23
PROGRAMMING FOR PROBLEM SOLVING

Time: 3 Hours

Total Marks: 100

Note: Attempt all Sections. If you require any missing data, then choose suitably.

SECTION A

1. Attempt all questions in brief. 2x10 = 20

- (a) Why Declaration of a variable is necessary in Programming?
- (b) Draw the Pyramid structure of memory hierarchy.
- (c) Describe the Bitwise operator.
- (d) Write advantages of Switch statement.
- (e) Find the output:

```
#include <stdio.h>
int main()
{
    int a=100;
    printf("%c\n",a);
    printf("Value is = %d",a);
    return 0;
}
```
- (f) Write the advantages of using Array.
- (g) Why header files are include in the Program?
- (h) Define time and space complexity.
- (i) Find the output:

```
#include<stdio.h>
int main()
{
    printf("%d", sizeof(void *));
    return 0;
}
```
- (j) How Linked List is represented as node?

SECTION B

2. Attempt any three of the following: 10x3 = 30

- (a) Discuss the various symbols used in flow chart and Write the algorithm for finding the largest of three number.
- (b) Discuss the type conversion and type casting with example
- (c) Write a program to print the pattern

```
1
22
333
4444
```
- (d) Explain bubble sort concept and also write the program.
- (e) Discuss the use of Pointer in Self Referential Structure with example.

SECTION C

3. Attempt any *one* part of the following: 10x1 = 10
- (a) Illustrate the History of Programming languages.
 - (b) Draw the architecture of Digital computer System and explain its all components.
4. Attempt any *one* part of the following: 10x1 = 10
- (a) Define Operator. Write the Program to find out the given year is leap year or not.
 - (b) Why break statement is important in switch case? Write a program to develop a calculator using case in operator format.
5. Attempt any *one* part of the following: 10x1 = 10
- (a) Write a Program for pattern

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 - (b) Write a program to print the Factorial of a number using recursive function.
6. Attempt any *one* part of the following: 10x1 = 10
- (a) Write a program for the selection sort and explain it with example.
 - (b) Write a Program to Transpose of a two dimensional array.
7. Attempt any *one* part of the following: 10x1 = 10
- (a) Define Pointer. How Pointer is declared and initialized? Write its Applications.
 - (b) Define File handling. write a program to copy the content of one file to another and also print the count of these coping elements.