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Even Semester Examination – 2023

Subject: Programming for Problem Solving

Paper Code: BTCSE – 203 / BTCSEAI – 203 / BTECE – 203

TIME: 2 Hours 30 Minutes **MAX. MARKS: 60**

SECTION – A (20 Marks)

❖ ***Attempt ALL questions. Each question is of 5 marks.***

Q. No.	Questions	CO*	BL*
1.	What are the 10 desired characteristics of the good computer program? Explain.	CO1	L1, L2
2.	Write a program to print the following pattern on the screen using **loops**: A A B A B C A B A	CO2	L3, L6
3.	a) What do you understand by pointers in C-language? Explain. (2 Marks) b) Write a program to swap values of two variables using call by reference. (3 Marks)	CO4	L2, L3, L6
4.	Write an explanatory note on structure data type in C-language with syntaxes and proper programming examples.	CO5	L1, L2, L3

SECTION – B (40 Marks)

❖ ***Attempt any FOUR questions. Each question is of 10 marks.***

Q. No.	Questions	CO*	BL*
1.	a) Define algorithm and write the pseudo code to generate Fibonacci series. (5 Marks) b) Explain flow charts with all symbols used in it and also draw a flow chart to find the factorial of a given number. (5 Marks)	CO1	L1, L2, L6
2.	a) What is the use of **break** and **continue** statements? Explain with programing examples **for each**. (4 Marks) b) Write a menu driven program to add, subtract, multiply, divide and find mod of two numbers entered by the user using **switch-case** statements. (6 Marks)	CO2, CO3	L1, L2, L3, L6,

3.	a) Write a program to sort the array using selection sort. (5 Marks) b) What will be the array elements after 3rd iteration to sort the following array in ascending order using selection sort: 34, 27, 19, 72, 20, 14, 29, 5, 62, 18. (5 Marks)	CO3	L2, L3, L5, L6
4.	a) Differentiate between an array and a string with examples. (4 Marks) b) Write a program to print the reversal of a given string without using any library functions. (6 Marks)	CO3, CO4	L2, L3, L6
5.	a) What will be the output of the following program? (5 Marks) b) What will be the output of the following code? (5 Marks)	CO3, CO4	L3, L4, L5
6.	Write an explanatory note on FILE with one programming example.	CO5	L1, L2, L3, L6

a) What will be the output of the following program? (5 Marks)

```
#include <stdio.h>
int rec(int, int, int);
int main(void)
{
    int i = 512, j = 256, k = 1024;
    int x=rec(i, j, k);
    printf("%d", x);
    return (0);
}
int rec(int p, int q, int r)
{
    int m, n, o;
    m=p%r;
    n=q%r;
    o=m%n;
    if(o = = 0)
    {
        return (n);
    }
    else
    {
    return(rec(m, n, o));
    }
}
```

b) What will be the output of the following code? (5 Marks)

```
#include <stdio.h>
int main()
{
    int i = 2, j = 100;
    while (i<100 && j>2)
    {
        i=i + j/2;
        j=j - 2*i;
    }
    printf("%d %d", i, j);
return (0);
}
```

CO* - Course Outcomes from Syllabus, BL* - Bloom's Taxonomy Levels (1: Remembering, 2: Understanding, 3: Applying, 4: Analyzing, 5: Evaluating, 6: Creating)

END