



SEM 2 – 4 (RC 16-17)

F.E. (Semester – II) (RC 2016-17) Examination, May/June 2018 PROGRAMMING LANGUAGES

Duration : 3 Hours

Total Marks : 100

Instructions : 1) Answer **any 5** questions by selecting **two** questions from Part – A, **two** questions from Part – B and **one** question from Part – C.

2) Make suitable assumptions if required.

PART – A

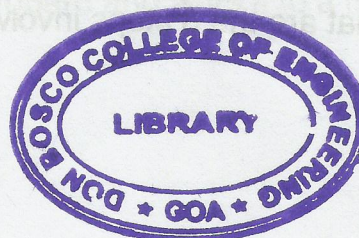
Answer **any two** questions from the following :

(2×20=40)

1. a) List and explain the various components of a flowchart ? 4
b) Devise an algorithm and draw a flowchart to find the sum of digits of a number. 6
c) Describe the elements of C function with the help of an example. What are the advantages of using functions ? 6
d) Explain switch case with the help of an example. 4
2. a) Write a C program to find sum of numbers from 1 to 100 that are divisible by 5. 6
b) Find the output of the following codes : 4

```
#include <stdio.h>
int main() {
    int x;
    x = 10;
    if(x > 10)
        x -= 10;
    else if(x >= 0)
        x += 20;
    else if(x < 10)
        x += 30;
    else
        x -= 40;
    printf("%d\n", x);
}
```

```
#include <stdio.h>
int main() {
    int a = -10, b = 20;
    if(a > 0 && b < 0)
        a++;
    else if(a < 0 && b < 0)
        a--;
    else if(a < 0 && b > 0)
        b--;
    else
        b--;
    printf("%d\n", a + b);
    return 0;
}
```

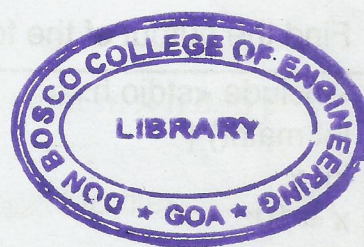


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- c) Differentiate between iteration and recursion. Write a recursive program to print the n^{th} term of the Fibonacci series. 6
- d) Differentiate between call by value and call by reference with the help of an example. 4
3. a) Devise an algorithm and draw a flowchart to print the factorial of a given number. 6
- b) Explain briefly the problem solving aspect. 4
- c) Write a C program to print the multiplication table of a given number. 6
- d) Find the output of the following code : 4

```
#include<stdio.h>
void xyz(int b) {
    ++b;
}
int main() {
    int b=200;
    xyz(b); xyz(b);
    printf("%d",b);
}
```



PART – B

Answer **any two** questions from the following :

(2×20=40)

4. a) Define pointers. What are the advantages and disadvantages of pointers ? 4
- b) What is a 2D array ? Explain with an example how to insert elements into a 2D array. 6
- c) What is a union ? How is it different from structure ? Give example. 6
- d) What are the 3 steps involved when reading from and writing to a file ? 4



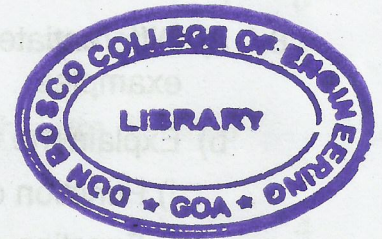
5. a) Find the output of the following codes :

4

```
#include<stdio.h>

int main() {
    void fun(char*);
    char a[100];
    a[0] = 'A'; a[1] = 'B';
    a[2] = 'C', a[3] = 'D';
    fun(&a[0]);
    return 0;
}

void fun(char *a) {
    a++;
    printf("%c", *a);
    a++;
    printf("%c", *a);
}
```



b) Write a C program to find smallest element in a 1D array.

6

c) Write a C program using a structure to accept the details of n employees with fields such as employee id, name, qualification and salary. Print the details of the employees having salary greater than 20,000.

6

d) Illustrate writing to a file using C programs.

4

6. a) Write a C program to find the product of two numbers by passing pointers to function method.

4

b) Write a C program to count the number of even and odd elements in an array of numbers.

6

c) Illustrate with example, the concept of array of structures.

4

d) Write a C program to read data from keyboard and write it to a file with the name PL.txt.

6



PART – C

Answer **any one** question from the following :

(1×20=20)

7. a) What is the importance of algorithm in computer science ? How does an algorithm differ from a program ? 5
- b) Write a C program to create a user defined function called square that will print the square of the numbers from 1 to 10. 5
- c) Explain the following String handling function. Demonstrate the use of each with the help of a C program : 5
- i) `strrev()`
 - ii) `strcmp()`
 - iii) `strlen()`
 - iv) `strstr()`
 - v) `strcat()`.
- d) Explain the concept of Dynamic Memory Allocation. 5
8. a) Differentiate between 'for' loop and 'if-else' condition with the help of examples. 5
- b) Explain the following with examples : 5
- i) Function declaration and Prototypes.
 - ii) Function definition and function call.
- c) Write a C program which adds two matrices of order $m \times n$ and print result in matrix form. 5
- d) Explain following functions with syntax with respect to files : 5
- a) `putc()`
 - b) `fprintf()`
 - c) `fscanf()`
 - d) `ftell()`
 - e) `fopen()`.

