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F.E. (Sem - II) (Revised Course 2016-17)
EXAMINATION MAY/JUNE 2019
Programming Languages

[Duration : Three Hours] **[Max.Marks : 100]**

Instructions
Please check whether you have got the right question paper.
1. Answer **any 5** questions by selecting **two** questions form 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 Marks**

Q.1 **(20 Marks)**

a) Explain the graphical method used for representing the logic of a program. **04**
b) Write an algorithm and draw a flowchart to accept 'n' numbers from the user and count the number of positive and negative numbers in the entered set. **06**
c) Explain the general syntax of function body and function declaration. **06**
d) Explain the structure of a 'do-while' loop along with an example. **04**

Q.2 **(20 Marks)**

a) Write a C program to check if a given number is a prime number or not. **06**
b) Find the output of the following codes: **04**

```
#include <stdio.h>
int main()
{
    int x = 10;
    do {
        x++;
      } while(x++ > 12);
    printf("%d", x);
}
```

```
#include<stdio.h>
int main ( )
{
   int a=5;
   int b = a % ( a - a / 2 ) * ( a - 3 ) + a ;
   printf("%d",b);
}
```

c) Write a recursive C program to print the n^{th} term of the Fibonacci series. State the differences between iteration and recursion. **06**
d) Write a C program using switch case construct to do the following: **04**
When user enters 0→ calculate the area of a circle.
When user enters 1→ calculate the perimeter of a circle.

Q.3 **(20 Marks)**

a) Write the algorithm and draw a flowchart to reverse a number entered by the user. **06**

b) Explain 'nested if-else'control structure with an example. **04**

c) Write a C program to accept 'n' numbers from the user and count how many of them are divisible by 10. **06**

d) Find the output of the following code: **04**

```
#include<stdio.h>
void xyz( )
{
   int k=4;
   int m;
   m=++k*k*2;
   printf("m = %d\n",m);
}
void main()
{
        int k=5;
        k=++k;
        xyz();
         xyz();
        printf("k = %d",k);
}
```

Part B

Answer any **TWO** questions from the following: **2×20=40 Marks**

Q.4 **(20 Marks)**

a) What do you mean by address operator in pointers? Explain with an example. **04**

b) What is a 1D array? Explain with examples how to insert elements into a 1D array. **06**

c) State the differences between structures and arrays. Give an example of each. **06**

d) Explain the different modes of a file. **04**

Q.5 **(20 Marks)**

a) Find the output of the following codes: **04**

```
//Assume address of 'a' as 2000 and size of int as 2 bytes
#include<stdio.h>
void main()
{
        int *p;
        int a;

        a=10;
        printf("address=%u\n",&a);
        printf("value=%d\n",a);

        p=&a;
        printf("address=%u\n",p);
        printf("value=%d\n",*p);

        *p=12;
        printf("address=%u\n",&a);
        printf("value=%d\n",a);

        p++;
        printf("address=%u\n",p);
}
```

b) Write a C program to enter 'n' numbers into a 1D array and then find the sum of the elements in that array. **06**

c) Write a C program using structures to accept details of 'n' patients with the fields patient_name, weight and age. Print the name of the patients having age greater than 30. **06**

d) Write a C program to demonstrate writing to a file. **04**

Q.6 **(20 Marks)**

a) Write a C program to find the factorial of a number by passing pointers to function method. **04**

b) Write a C program to display all the odd elements from a 1D array. **06**

c) Illustrate with example, the concept of array of structures. **04**

d) Write a C program to read contents from a file and display the contents to the user. **06**

Part – C

Answer any **ONE** question from the following:- **$1 \times 20 = 20$ *Marks***

Q.7 **20 Marks**

a) Find the output of the following codes: **05**

```
#include<stdio.h>
int main()
{
  int n;
  for(n = 7; n!=0; n--)
    printf("n = %d \n", n);
}
```

```
#include <stdio.h>
int main()
{
   int x = 4, y = 3, z = 2, w = 1;
   printf("%d ", x * y / z - w);
   printf("%d", x * y / (z - w));
}
```

b) Write a C program to accept 2 numbers from the user and do addition, subtraction, multiplication or division operation on them depending on the user's choice. The program should contain a separate function for each operation. **05**

c) Explain the following String handling function. Demonstrate the use of each with the help of C Program. **05**

i) strrev()

ii) strcat()

d) Explain the different functions used for Dynamic Memory Allocation. **05**

Q.8

a) Differentiate between 'for' loop and 'while' condition with the help of examples. **05**

b) Explain the difference between algorithms and programs. **05**

c) Write a program to multiply 2 matrices. **05**

d) Explain following functions with syntax with respect to files: **05**

i) putc()

ii) fscanf()

iii) ftell()

iv) fprintf()

v) fopen()