FE204

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F.E Semester-II (Revised Course 2016-17)
EXAMINATION OCTOBER 2020
Programming Languages

[Duration : Two Hours] **[Total Marks :60]**

Instructions:- 1) Answer THREE FULL QUESTIONS with ONE QUESTION FROM EACH PART.
2) Make suitable assumptions if required.

PART-A

1 a) Show how a problem is sub divided in top down refinement. **(5)**

b) List and explain the features of block structured languages. **(5)**

c) What do you mean by conditional operator? Explain with example. **(5)**

d) Write a C Program to shift data bits to the left for x=32 and to shift data bits to the right for y=24. **(5)**

2. a) What are the factors to be considered before setting up a data structure? **(4)**

b) Derive an algorithm and draw a flowchart for counting the even and odd numbers from the given set of numbers. **(6)**

c) Write a C program to print Fibonacci series up to n **(6)**

d) Pick out errors if any, otherwise write the output. **(4)**

```
#include<stdio.h>
#include<conio.h>
void main()
{
Int i,j,x=0;
for(i=0,i<5,++i)
for(j=0.j<i,++j)
                {
                 x+≡(i+j-1);
               printf("%d\n",x);
               break;
                   }
printf("\nx=%d",x);
getch():
}
```

3 a) What is an algorithm? How does it differ from a program? **(4)**

b) Devise an algorithm and draw a flowchart for generation of prime numbers. **(6)**

c) Differentiate between Call by value and call by reference with the help of an example. **(6)**

d) Pick out the errors if any, otherwise write the output. **(4)**

```
#include<stdio.h>
```


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```
#include<conio.h>
voidfunc();
voidmain() {
int i=0,
while(i<=3) {
func()
i++; }
getch();
}
voidfunc() {
int x=10;
   x=x+10;
printf("%d\n",x);
}
```

PART B

4 a) What is an 2D array? Explain with examples compile time and run time initialization of 2D array. **(4)**

b) The programmer has declared and initialized an array as shown to store marks of 4 subjects **(6)**

51	**66**	**71**	**17**

The programmer goes ahead and displays the array to his lab instructor. The lab instructor tells the programmer that he has missed out marks for Subject_3 and tells him to insert 77 marks in between 66 and 71 appropriately and display the array. Write a C program for the above scenario.

c) Write a program to accept marks of 'n' students in an array and compute the average by passing the array to the function. **(4)**

d) Write a C program to display the sum of the elements of two matrices. **(6)**

5. a) 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()

b) Write a C Program to reverse a number using pointer. **(5)**

c) What is a structure? How is a structure different from an array? Give an example of each. **(5)**

d) 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 **(5)**

having five digit salary.

6. a) Explain the general format of opening a file with an example. **(5)**

b) Explain the following functions with respect to files: **(4)**
i. rewind() ii. fscanf() iii)ftell() iv) fprintf()

c) Explain any four input/output operations on files. **(4)**

d) Write a C program to read five numbers from a file. Calculate the average of the numbers and print the average in another file. **(7)**

PART – C

7. a) Explain the graphical method used for representing the logic of a program. **(5)**

b) Pick out the errors if any, otherwise write the output. **(2)**

i)
```
#include<stdio.h>
#include<conio.h>
void main()
{
int i=3,j=2,k=0,m;
m=++i&&++j&&++k;
printf("%d,%d,%d,%d\n", i, j, k, m);
getch():
}
```

ii) **(3)**
```
#include<stdio.h>
#include<conio.h>
void main()
{
 int x,y;
 x=128, y=32;
 x=x>>1;
 y=y<<2;
 printf("x=%d and y=%d", x, y);
 getch();
 }
```

c) Pick out the errors if any, otherwise write the output. **(5)**

```
#include<stdio.h>
#include<conio.h>
void main()
{int x[5]={5,9,6,3,7};
int*p, sum=0,i=0;
i=0;
p=x;
```

```
        while(i<5)
{       printf( "x[%d] %d   %u\n", i,* p, p);
        sum=sum+ *p;
        i++;
        p++;}
printf("\n Sum=%d", sum);
getch();
}
```

d) How do you determine the size of a structure? Explain with help of example **(5)**

8 a) Explain the following **(6)**

i) Functional style of Programming

ii) Imperative style of Programming

b) Pick out errors if any, otherwise write the output **(4)**

```
#include<stdio.h>
#include<conio.h>
int fun(int*,int);
void main()
{
int ii=4,jj=2;
fun(&ii,jj);
printf("%d %d", ii, jj);
getch();
}

int fun(int *ii,intjj)
{
*ii=*ii**ii;
jj=jj*jj;
}
```

c) **(4)**

```
#include<stdio.h>
#include<conio.h>
void main ()
{
int a[4]={6,9,13,2};
int b[4]={6,1,3,7};
int i;
for(i=0,i<4,i++)
a[i]+=b[i];
for(i=1;i<4,i++)
printf("%d\n", -- a[i]);
getch();
}
```

d) Differentiate between structure and union with help of an example. **(6)**