College of Engineering, Pune
End Semester Exam – May 2010
F. Y. B. Tech. (All)
(CT-101) – Computer Programming

Day & Date- Monday, 10th May 2010 Time: - 10:00 am to 01:00 pm

Maximum Marks: 50 Duration 03 hrs.

Instructions:

1. Solve any 12 from Q. 1, any 09 from Q. 2 and any 05 from Q. 3.
2. Q 1 is of 12 marks, Q 2 is of 18 marks and Q 3 is of 20 marks.
3. State the assumptions wherever necessary.
4. For all output questions, two line justification is necessary.
5. Don't solve any extra questions.

Q. 1 A. Which parameter passing technique should be used when we want to alter the values of actual arguments?

B. Can we write a structure within a structure? Give appropriate example. State difference between union and structure?

C. Write the output of following code.

```
main()
{ char a[2][30]={"Don't walk in front of me..", "I am not follow"};
 cout<< *(a[0]+9)<<"\t"<<*(*(a+1)+7); }
```

D. List and describe file modes.

E. Write a program to find length of a string without using string library function.

F. Write output of following.

```
main()
{int i=-4,j,num=10;
 j=i% -3;
 j= (j? 0: num*num);
 cout<<"j="<<j;}
```

G. Write output of following.

```
main()
{
 int x, y, z, s; x=y=z= -1;
 s=++x && ++y || ++z;
 cout<<x<<"\t"<<y<<"\t"<<z<<"\t"<<s; }
```

H. Write output of following.

```
main()
{float a=1.5;
  int b=3;
  a=b/2+b*8/b-b+a/3;
  cout<<"a="<<a;   }
```

I. What do you mean by scope of a variable?

J. Explain enumeration with example?

K. How a for loop can be different from a do while loop?

L. Can we increment the void pointer? Why it is necessary to typecast void pointer?

M. Write output of following.

```
main(){
int i=4;
switch(i)
{ default:
  case 3: i+=5;
  if(i==8)
   { i++;
    if(i==9)
    break;
    i*=2;}
   i-=4;
   cout<<i;
   break;
   case 8:  i+=5; break;}
 }
```

N. What happens if we use address of operator to a pointer?

Q. 2 A. Explain all storage classes.

B. Write the output of following code.

```
int main()
{ static int a[]={10,11,12,13,14};
  static int *p[]={a,a+1,a+2,a+3,a+4};
  int **ptr=p; ptr++;
  cout<<ptr-p<<(*ptr-a)<<**ptr<<endl;
  *ptr++;
  cout<<ptr-p<<(*ptr-a)<<**ptr<<endl;
  *++ptr;
```

```
cout<<ptr-p<<(*ptr-a)<<**ptr<<endl;
++*ptr;
cout<<ptr-p<<(*ptr-a)<<**ptr<<endl; return 0; }
```

C. Write output of following code.

```
int fun(int);
main()
{int k=35,z;
k=fun(k=fun(k=fun(k=fun(k))));
cout<<k;}
int fun(int k)
{k++;
return(k);}
```

D. Write output of following code.

```
int main()
{ int a,*b, **c, ***d, ****e;
a=10; b=&a; c=&b; d=&c; e=&d;
cout<<a<<b<<c<<d<<e<<endl;
cout<<a+*b<<**c+***d+****e<<endl; return 0; }
```

E. Write output of following code.

```
void fun(int , int* );
main()
{ static int a[5]={2,4,6,8,10};
  int i, b=5;
 for( i=0; i<5; i++)
  { fun(a[i], &b);
   cout<<a[i]<<"\t"<<b; } }
void fun(int x, int *y)
 { x=*y+=2;
   cout<<x<<"\t"}
```

F. Explain command line arguments with a suitable example.

G. Write output of following code. Assume base address as 2000.

```
main()
{ int a[3][4]={21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32};
 cout<<a<<"\t"<<a+1<<"\t"<<a+2<<endl;
 cout<<*a<<"\t"<<*(a+1)<<"\t"<<*(a+2)<<endl;
 cout<<*a+1<<"\t"<<*a+2<<endl;
 cout<<*(a+1) +1<<"\t"<<*(a+2)+2; }
```

H. Explain the concept of function returning pointer with suitable example.

I. Write output of following code.

```
void coep();
 main()
{
 coep(); coep(); coep(); }
 void coep()
  {
    int x=9; static int y=0;
    x - = ++y;
    y += x++;
    cout<<x<<"\t"<<y<<endl;}
```

J. How can we pass a structure to a function?

Q. 3 A. Write a program on salary sheet of an employee to accept the elements of structures i. Emp. No. ii. Basic pay iii. Name iv. Department and display the same structure along with DA, HRA, Gross salary. Consider the calculations.
DA=51% of Basic pay, HRA=15% of Basic pay,
Gross salary= Basic pay + DA + HRA

B. Write a program to find power of a number using recursion. Write similarities and differences between recursion and iteration.

C. Write a program to search an element from n numbers using function and binary search.

D. Write a program to generate the following pattern.

```
      1
     121
    12321
   1234321
  123454321
```

E. Write a program to print the string in alphabetical order using do-while loop.

F. Write a program to read 100 numbers from a file and calculate average of the numbers and write the average at the end of the file.