PROGRAMMING GATE CSE 2019

Q1. Consider the following program.

```
int a=13,b=14;
main()                      D()                     E()
{ int a=5,b=6;              {                       {
C();                          pf(a,b);              int b=60;
Pf(a,b);                      a=40;b=50;            pf(a,b);
D();                          E();                  a=1,b=2;
Pf(a,b);                      }                     }
}
C()
{
Int a=4;
Pf(a,b);
D();
Pf(a,b);
}
```

Find the output of the above code assuming static scoping and dynamic scoping.

Q2 . Consider the following program. Find the output assuming static scoping and dynamic scoping.

```
Int a=0,b=8;
Main()              C()             D(int b,int a)              E()
{                   {               {                           {
Int a=1;            int b;                pf(a,b);              int a=11,b;
C();                pf(a,b);              a=4,b=5;              pf(a,b);
Pf(a,b);E();        D(a,b);               E();                  a=4,b=5;
Pf(a,b);            pf(a,b);        }                                 }
}                   a=3,b=4;
```

```
                        }
```

Q3. Consider the following program. Find the output.

```
 Main()
{
Static int var=5;
If(var--)
 { Main();
  Pf(var);
      }
}
```

Q4. . Consider the following program. Find the output.

```
Main()
{
Static int var=5;
Pf(var--);
If(var){
Main();
Pf(var);
}
}
```

Q5. Consider the following program. Find the output.

```
Main()                              f(int x)                g(int x)
{                                   {                       { static int y=20;
Int x=5,y=10,I;                     int y;                  y++;
For(int i=1;i<=2;++i)               y=g(x);                 return x+y;
{ y+=f(x) + g(x);                   return x+y;                   }
Pf(y);                              }
```

```
}}
```

Q6. Consider the following program. Find the output.

```
F(int n)
{ static int r=5;
If(n<=0){r=r+10;return 10;}
Else if(n>=3) return f(n-2) +r ;
Else return f(n-1) + r;
}
```

```
main()
{
      pf("%d",f(6));
}
```

Q7. Consider the following program. Find the output.

```
Int a=5;
Main()
{ extern int a;
Pf(a);
}
```

Q8. Consider the following program. Find the output.

```
Main()
{ extern int a;
Pf(a);
}
```

Q9. Consider the following program. Find the output.

```
Main()
{ extern int a;
Pf("hi");
}
```

Q10. Consider the following program. Find the output.

```
Int a;
Main()
{ extern int a;
```

```
Pf(a);}
```

Q11. Consider the following program. Find the output.

```
Extern int a;
Main()
{ extern int a;
Pf(a);
}
```

Q12. Consider the following program. Find the output.

```
int a;
Main()
{ extern int a;
Pf(a);
a=10;
Pf(a);
}
```

Q13. Consider the following program. Find the output.

```
extern int a=5;
Main()
{ extern int a;
Pf(a);
}
```

Q13. Consider the following program. Find the output.

```
extern int a=5;
Main()
{ extern int a;
Pf(a);
}
```

Q14. Consider the following program. Find the output using dynamic scoping and static scoping.

```
Int a=5,b;

Main()                  C()                     D()
{                       {                       {
Auto int a=10;          extern int a;           register int a=4;
Pf(a,b);                static int b =25;       pf(a,b);
C();                    pf(a,b);                E();
a=1,b=2;                D();                    a=4,b=5;
E();                    a=2,b=3;                }
Pf(a,b);                }
}
E()
{ int a=44;
Static int b=77;
a=11;
b=12;
Pf(a,b);
}
```

Q15. Consider the following program.Find the output.

```
Main()
{
Int i;
For(i=1;i<=25;++i)
{ switch(i){
Case 1 : i+=3 ; Case 2:i+=4;
Case 3:i+=4;
```

Default: i+=3;break;}Pf(i);} }

Q16. Consider the following program.Find the output.

```
Main()
{
Int i=-1,j=-1,k=-1,l=2,m;     // alternate question  using a.) k=0 b.) i=0
M= ((i++ && j++ && k++)||(l++));
Pf(i,j,k,l,m);
}
```

Q17. Consider the following program.Find the output.

```
Main()                                  f(int x,int *py,int **ppz)
{                                       {
Int c,*b,**a;                                 int y,z;
c=4;b=&c;a=&b;                          **ppz+=1;
pf("%d",f(c,b,a));                            z=**ppz; *py+=2; y=*py;
}                                       x+=3;
                                        Return (x+y+z);
                                        }
```

Q18. Consider the following program.Find the output.

```
Main()                                  void f(int x,int *P)
{                                       {*p=x;x=10;}
Int a=5,b=6;
Int *p=&a;
Int **q;
*p=20;
Q=&p'
F(a,&b);
*q=&b;
*p=20;
```

```
Pf(a,b);
}
```

Q19. Consider the following program.Find the output.

```
Int f(int a)                    main()
{                               { int b=1;
Pf(a++);                        b=f(b);
Return ++a;                     b=f(b);
}                               b= f(1+f(b));
                                      }
```

Q20. Consider the following program.Find the output.

```
Main()
{int a=20;
Int *b=&a;
Scanf("%d",b);
Printf("%d",a+50);
}
```

Q21. Consider the following program.Find the output.

```
Int f(int *a,int n)
{
If(n<=0) return 5;
Else if(*a%2==0)return *a + f(a+1,n-1);
Else return *a- f(a+1,n-1);
}
Main()
{
Int a[]={12,7,13,5,11,4,6};
Pf("%d",f(a,7));
}
```

Q22. Consider the following program.Find the output.

```
Main()
{
Int a[]={10,20,30,40,50,60};
Int *b[6]={a+3,a+2,a+1,a,a+4,a+5};
Int **c =b;
C++;
Pf(c-b,*c-a,**c); **c++;
Pf(c-b,*c-a,**c); ++*++c;
Pf(c-b,*c-a,**c); ++*++*c;
Pf(c-b,*c-a,**c);
}
```

Q23. Consider the following program.Find the output.

```
Main()
{
Float b[] ={50,60,70,20,10,30};
Float *c[]= {b+3,b+4,b,b+2,b+1,b+5};
Float **a=c;
**++a;
Pf(a-c,*a-b,**a);
*++*a;
Pf(a-c,*a-b,**a);
++**a;
Pf(a-c,*a-b,**a);
}
```

Q24. Consider the following program.Find the output.

```
Main()
{ int a[] ={10,20,30,40,50};
Int b[]={10,20,30,40,50};
If(a==b) pf(“hi”);
Else pf(“bi”);
}
```

Q25. Consider the following program.Find the output.

```
Main()
{
Char a[]=”gate2011”;
Pf(“%s”,a+ a[3]-a[1]);
}
```

Q26. Consider the following program.Find the output.

```
Main()
{
Char a[7];
Char *b= “string”;
Int length=strlen(b);
For(int i=0;i<length;++i)
{
a[i]=b[length-i];
}
Pf(“%s”,a);
}
```

Q26. Consider the following program.Find the output.

```
Main()
{
Char *a[]= {“papa”,”stupid”,”break”,”gotohell”,”chacha”,”chachi”};
Char **b[]={ a+2,a+1,a,a+3,a+4,a+5};
Char ***c=b;
**c+1;
Pf(“%s”,**++c+2);
Pf(“%s”,**(c+3)+2);
Pf(“%c”, *(*++**++c +3) );
}
```

Q27. Consider the following program.Find the output.

```
Main()
{
Int a[5][2]={10,20,30,...,100}; //assume base address 1000
Pf(“%d”,((a==*a)&&(a[0]==a)));
Pf(“%u %u”, *a+3, a[2]+2);
Pf(“%u %u %d”,*(a+2)+2,(a+2)+2,*(a[2]+2));
}
```

Q28. Consider the following program.Find the output.

```
Main()
{
Int a[5][7][4];
Pf( *(a+2) +3,a[3]+3,*a[2]+2);
Pf( *((*(a+2)+2)+1), **a+2, *a+3);
Pf(**(a+3)+2, *(*(a+2)+3)+2, ***a+5);
}
```

Q29. Consider the following program.Find the output.

```
Main()
{
Int a=300;
Char *b =(char *)&a;
b++;
*b=2;
Pf("%d",a);
}
```

Q30. Write a c program to return address of second last node of linked list.

Q31. Write a c program to return address of node which contains data x in singly linked list.

Q32. Consider the following linked list. Pointer s denotes starting node of linked list.

(a)→ (b)→(c)→(d)→(e)→(f)→(g)→(h)→(i)

Following code is executed on above linked list.

Struct node *p;

P= s→next →next→next→next→next→next;

p→next→next→next=s→next→next→next→next;

s= p→next→next→next→next→next→next→next;

pf(s→next→next→next→next→next→data);

find output.

Q33. Consider the following linked list. Pointer s denotes starting node of linked list.

(a)→ (b)→(c)→(d)→(e)→(f)→(g)→(h)→(i)

Following code is executed on above linked list.

Struct node *p;

P= s→next→next→next→next;

p→next→next→next= s→next→next→next;

p=s→next→next→next→next→next;

s=p→next→next→next→next→next→next;

pf(p→next→next→next→next→next→data);

Q33. Write a program to insert a node with data x at end of linked list.

Q34. Write a program to insert a node with data x before node with data y.

Q35. Write a program to reverse a linked list.

Q36. Write a program to find address of middle node of linked list.

Q34. Write a program to perform binary search on linked list.

Q35. Write a program to perform merge sort on linked list.

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