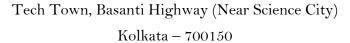


## Bengal Institute of Technology

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# FOR CODING ARENA

1) WHAT WILL BE THE OUTPUT OF THE FOLLOWING PROGRAM?

```
#include<stdio.h>
int main()
{
    int a=7,b=2;
    printf(" %d",printf(" %d",printf("%d%d%d", a,b,a))));
    printf("\n");
    printf("%d",printf("%d",printf("%d%d%d", a,b,a))));
    return 0;
}
```

ANS>>7273 1 2 727311

EXPLAINATION:- Printf command returns the number of characters it has accepted including blank spaces.

#### 2) WILL THE FOLLOWING PROGRAM COMPILE SUCCESSFULLY?

```
#include<stdio.h>
#define Why(a,b,c,d,e,f,g,h,i,j)a##b##d##c
#define Stucked Why(m,a,n,i,s,q,u,a,r,e)
Stucked()
      printf("Where is the main??");
ANS>> YES IT WILL COMPLILE.
EXPLAINATION:-
line2: #define Why(a,b,c,d,e,f,g,h,i,j)a##b##d##c
         line3: #define Stucked Why(m,a,n,i,s,q,u,a,r,e)
         line4: Stucked()
         Stucked() gets replaced with the marco Here in line3.
         Now in line3 Stucked calls another macro in line2 and the parameter passed is
(m,a,n,i,s,q,u,a,r,e)
         which gets stored in the variable of Why(a,b,c,d,e,f,g,h,i,j)
       Thus a=m, b=a, d=i, c=n ...
       now it ges replaced her with a##b##d##c
         i.e. main()
         SO THE PROGRAM COMPILES WITHOUT ANY ERROR.
```

### 3) WRITE A PROGRAM WHICH WILL CONTAIN 4 FUNCTIONS:

```
void A();
void B();
void C();
void None();
```

USER WILL ENTER A CHARACTER FROM KEYBOARD. IF THE CHARACTER ENTERED IS EITHER A,B OR C THE O/P WILL BE "In function A"... else "Invalid choice"

THE PROGRAM MUST NOT CONTAIN IF-ELSE OR SWITCH-CASE.

```
ANS>>
#include<stdio.h>
#include<string.h>
void A()
         printf("In function A \n");
void B()
         printf("In function B\n");
}
void C()
         printf("In function C\n");
}
void None()
         printf("Invalid choice\n");
char\ Call \llbracket 4 \rrbracket \llbracket 50 \rrbracket = \{ \text{"A","B","C","None"} \};
```

```
void (*fun_ptr[4])();
int main()
{
    int i=0;
    char a[10];
    fun_ptr[0]=&A;
    fun_ptr[1]=&B;
    fun_ptr[2]=&C;
    fun_ptr[3]=&None;
    printf("\nEnter a character in caps: ");
        gets(a);
        while((strcmp(a,Call[i]))!=0 && i<3)
        {
            i++;
        }
        fun_ptr[i]();
        return 0;
}</pre>
```

EXPLAINATION:- A simple application of function pointers.

4) WRITE A SIMPLE C/C++ PROGRAM WITHOUT USING ANY HEADER FILE AND COMPILE IT WITHOUT ANY ERRORS.

```
ANS>>
int main()
     return 0;
EXPLAINATION:- A header file contains library functions whichh are required to do some
useful tasks. But in the above program there
are no library functions used. So it compiles succesfully without giving any errors.
5) WILL THE FOLLOWING HELLO WORLDPROGRAM RUN?
??=include <stdio.h>
??=include <stdlib.h>
int main()
>??
     printf("Hello World");
     return 0;
>??>
ANS>> YES IT WILL.
EXPLAINATION:- Trigraphs!!
??= represents #
??/ represents \
??' represents ^
??( represents [
```

6) FLAMES IS A POPULAR GAME. RELATION BETWEEN TWO PERSONS IS CALCULATED BY THIS GAME. WRITE A C PROGRAM TO IMPLEMENT THE GAME.

THE PROGRAM WILL ACCEPT NAMES OF TWO INDIVIDUALS AND WILL DISPLAY THE RELATION BETWEEN THEM.

```
#include<stdio.h>
#include<stdlib.h>
#include<string.h>
#define SIZE 30

struct linked{
        char c;
        struct linked *next;
};
typedef struct linked *node;

node p,q,m;
node start=(node)malloc(sizeof(struct linked));

void freenode(node);
void flames(int);
```

```
void main()
{
       char a[SIZE],b[SIZE];
       int i,j,n,loa,lob,count=0;
       printf("Enter your name: ");
       gets(a);
       printf("Enter the other name: ");
       gets(b);
       loa=strlen(a);
       lob=strlen(b);
       n=loa+lob;
       for(i=0;i<loa;i++)
              for(j=0;j<lob;j++)
                     if (toupper(a[i])==toupper(b[j]))
                      {
                             a[i]='*';
                             b[j]='*';
                             count=count+2;
                             break;
               }
       }
       n=n-count;
       p=(node)malloc(sizeof(struct linked));
       start->next=p;
       start->c='F';
       p->c='L';
       q=(node)malloc(sizeof(struct linked));
       p->next=q;
       q->c='A';
       p=(node)malloc(sizeof(struct linked));
       q->next=p;
       p->c='M';
```

```
q=(node)malloc(sizeof(struct linked));
      p->next=q;
      q->c='E';
      p=(node)malloc(sizeof(struct linked));
      q->next=p;
      p->c='S';
      p->next=start;
      p=start;
      for (j=1;j<6;j++)
             for (i=2;i<n;i++)
                    q=p->next;
                    p=q;
             m=p->next;
             p->next=m->next;
             freenode(m);
             p=p->next;
      m=p->next;
      p=m;
      printf("Your relation: %c\n", m->c);
}
void freenode(node m)
      free(m);
```

```
7) WRITE A PROGRAM TO PRINT THE "PASCAL'S TRIANGLE".
THE NUMBER OF LINES TO BE PRINTED WILL BE TAKEN AS INPUT FROM
KEYBOARD.
FOR e.g.
IF THE USER INPUTS: 5
O/P WILL BE:-
  1
 1 1
 121
1 3 3 1
14641
THE LOGIC USE SHOULD NOT BE OF 11<sup>2</sup>.
ANS>>
/*program to print pascal tringle of numbers*/
#include<stdio.h>
void main()
      int i,j,n,a[100][100];
      printf("Enter nth number of lines to be printed: ");
      scanf("%d", &n);
      for (i=0;i<=n;i++)
            for (j=0;j<=((2*n)+1);j++)
                   if (j==n && i==0)
```

a[i][j]=1;

a[i][j]=0;

}
else

```
for (i=1;i \le n;i++)
       for (j=1;j<(2*n);j++)
              a[i][j] = a[i-1][j-1] + a[i-1][j+1];
for (i=0;i<n;i++)
       for (j=1;j<(2*n);j++)
              if (a[i][j]!=0)
                      printf("%2d",a[i][j]);
              else
                      printf(" ");
       printf("\n");
```

8) WRITE A PROGRAM IN WITHOUT USING GRAPHICS WHICH WILL DRAW THE GRAPH OF  $y=x^2$ . TAKE LEFT VERTICAL SIDE OF SCREEN AS POSITIVE x-axis AND

TOP HORIZONTAL SIDE OF SCREEN AS POSITIVE y-asix.

```
ANS>>
#include<stdio.h>
#include<math.h>
int f(int x)
       int y;
       y=(int)pow(x,2);
       return y;
int main()
{
       int i,x,j,y;
       printf("\nEnter value of x: ");
       scanf("%d", &x);
       for (i=0;i<5;i++)
               y=f(i);
               for (j=0; j< y; j++)
                      printf(" ");
               if (j==y)
                      printf("*\n");
       return 0;
```

9) WRITE A PROGRAM WHICH WILL ACCEPT TWO CHARACTERS OR NUMBERS AND CHECK FOR THEIR EQUALITY.NOTE THAT 0123 & 123 ARE EQUAL.[IGNORE FLOATING PARTS]

```
ANS>>
#include<stdio.h>
#include<string.h>
#include<stdlib.h>
#include<ctype.h>
int main()
{
       char a[50],b[50];
       printf("\nEnter first character: ");
       gets(a);
       printf("\nEnter second character: ");
       gets(b);
       if (isdigit(*a) && isdigit(*b))
               if(atoi(a) = = atoi(b))
                      printf("\nThe numbers are equal\n");
               else
                      printf("\nThe numbers are not equal\n");
               }
       }
       else if (isalpha(*a) && isalpha(*b))
               if(!strcmp(a,b))
                      printf("\nStrings are equal\n");
               else
```