Name:

Roll No: e.g. 170001 | **Dept.**: e.g. CHE | **Sect.**: e.g. A4

IIT Kanpur
ESC101 Fundam. of Comp.
Minor Quiz 3A
Date: February 6, 2018

Instructions:

Total: **10 marks**

1. Write your name, roll number, department, section on **every side of every sheet** of this quiz paper
2. Write final answers **neatly with a pen** in the given box.
3. Do not give derivations/elaborate steps unless the question specifically asks you to provide these.

Problem 1 (A Bollywood Award 'Function': 10 marks**).** While Leonardo was busy solving Major Quiz 1, Uncle Nolan was feeling nostalgic about an event he attended where he met directors like Subhash Ghai, David Dhawan and Rakesh Kumar, who invented such awesome functions using their mathematical intellect which can output extraordinarily entertaining movies. Write the output of the following program in the box on next page to get a taste of these functions.

1.

```
#include <stdio.h>

int lakhan(int x, int y);

int tara_sitara(int x, int y)
{
  if(x==y) {
    switch(y) {
      case 1: return 3*lakhan(x,2*y) + lakhan(4*y,x);
      case 2: return 2*lakhan(y,2*x) + 3*lakhan(x,2*y);
      default: break;
    }
  }
  return -1;
}

int lakhan(int x, int y)
{
  int temp;
  if((x==1 && y==2) || (x==4 && y==2))
    return (2*y/x);
  else if ((x==2 && y==1) || (x==2 && y==4)) {
    temp = x; x = y; y = temp;
    return (5*y-2*x)/2;
  }
  else return -1;
}

int main ()  {
  int x = 1, y = 2, z = lakhan(y,2*y);
  printf("T1 : %d %d %d\n",x,y,z);
  z = tara_sitara(y+z-x,x+2*z-y);
  printf("T2 : %d %d %d\n",x,y,z);
  z = tara_sitara(lakhan(2*y,x+y+z),tara_sitara(x-z,y)%4);
  printf("T3 : %d %d %d\n",x,y,z);
  return 0;
}
```

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```
1 T1 : 1 2 1
2 T2 : 1 2 -1
3 T3 : 1 2 11
```

BLANK SPACE: Any answers written here will be left ungraded.
No exceptions.
You may use this space for rough work.