DATA STRUCTURES

BATCH – A
[TUESDAY FEBRUARY 14, 2017: 2:00 PM – 5:00 PM]

ASSIGNMENTS – 5 CODE: `assign05`

INSTRUCTIONS: [Total Marks: 20]

i) Read all assignments and each problem has to be answered in the same c file.
ii) Create a `.c` file following the file name convention: `abc-assign05.c`
Where `abc` is your roll number and `assign05` is the assignment code
iii) Strictly follow the file name convention and do not use `scanf()`

PROBLEMS: (There are totally 5 problems)

1) **[Marks: 4 marks]**
Define a TRIANGLE using typedef with three points

2) **[Marks: 16 marks]**

Using the following prototypes, write functions for the following tasks

a) **[Marks: 4 marks]**
Generate N Triangles by randomly generating x and y coordinates between [10.0, 40.0]. You could use `srand()` function with time to initialize the random number generator.

```
TRIANGLE *genTriangles(int n);
```

b) **[Marks: 4 marks]**
Compute the area of each of N triangles

```
void computeArea(TRIANGLE *t, int n);
```

c) **[Marks: 3 marks]**
Write a function to print the triangles (3 points and the area covered by these 3 points)

```
void printTriangles(TRIANGLE *t, int n);
```

d) **[Marks: 5 marks]**
Write a function that computes and prints the inner angles of each of N triangles (you do not need to store them in the structure … Simple print the output)

```
void findPrintInAngles(TRIANGLE *t, int n);
```