

Roll No.:

Name:

Submission time:

1. Create a folder (directory) **LABT2** in your home directory. Create a C program file **Tabyz.c** in the folder **LABT2**, where **ab** stands for first two digits of your roll number and **yz** stands for last two digits of your roll number. The C program **Tabyz.c** find the trace of a square matrix and the transpose of the square matrix. Part of the program is written for you. You must copy the code omitting the comments. Modify the code according to the comments. A brief description of the code is given below.

Two matrices **A** and **B** are of maximum sizes $N \times N$. The matrix **A** has actual order **ra** × **ca** and matrix **B** has actual order **rb** × **cb**. Row order **ra** of **A** is a random integer between 4 and 8 (**ra** and **ca** have already been assigned in your code). Implement the following in the code:

- (a) Seed the random number generator *srand()* with **abyz**, where **ab** stands for first two digits of your roll number and **yz** stands for last two digits of your roll number.
- (b) Assign random integers between 0 and 5 (both inclusive) as elements of the matrix **A**. Note that *rand()%m* generates random integers between 0 and $m-1$.
- (c) Print matrix **A** row-wise.
- (d) Call the **void** function **tratt** with appropriate arguments so that after the call to **tratt**, the matrix **B** becomes $B=A^T$, and **rb**, **cb** become **ca**, **ra** respectively. Also, the variable **trace** contains the trace of the matrix **A**.
- (e) Print matrix **B** row-wise
- (f) Print trace of the matrix **A**
- (g) Provide the details of the function **tratt** and also write its prototype above *main()*.

```
#include <stdio.h>
#include<stdlib.h>
#define N 100
//write the prototype of tratt here
int main()
{int A[N][N],B[N][N],trace,ra,ca,rb,cb;
//you may declare other variables as needed
srand(abyz); //seeding: ab (yz) first (last) two digits of your roll no
ra=4+rand()%5;
ca=ra;
//Assign the matrix elements of A here
//print the matrix A row-wise
printf("\n");
//call the void function tratt here
//print the matrix B row-wise
//print the trace of A
return 0;
}
//write the void function tratt here
```

Please upload the C file **Tabyz.c** to the link send to your email. Submit this slip too.