MATLAB ASSIGNMENT-5

SIMILARITY AND ORTHOGONAL TRANSFORMATION

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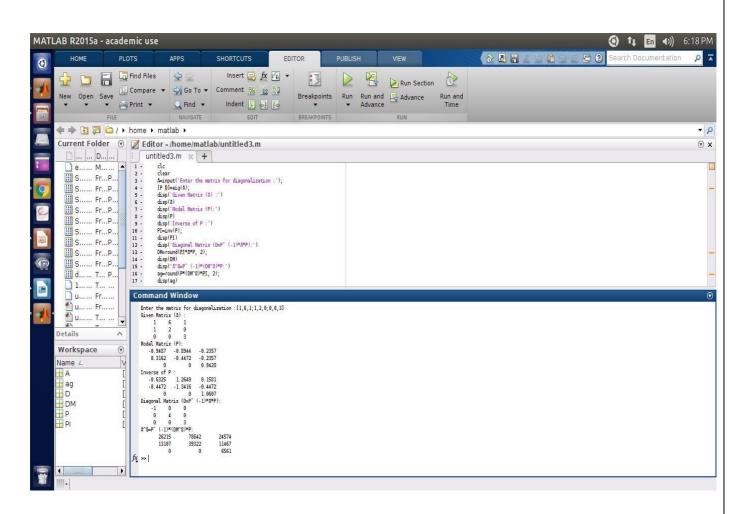- **REG NO.: - 18BCI0173**
- **SLOT: - L15 +L16**
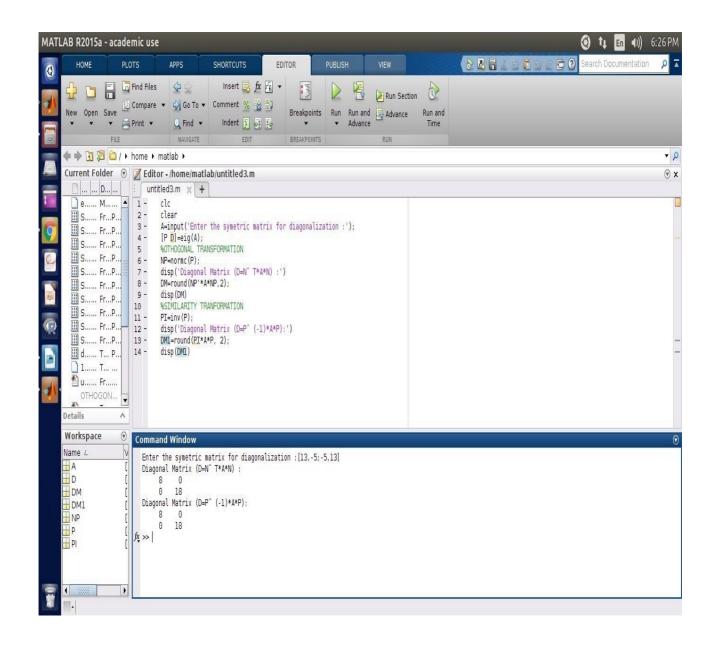- **SESSION: - WINTER SEMESTER 2018-2019**
- **FACULTY: - PROF. POORNIMA T**
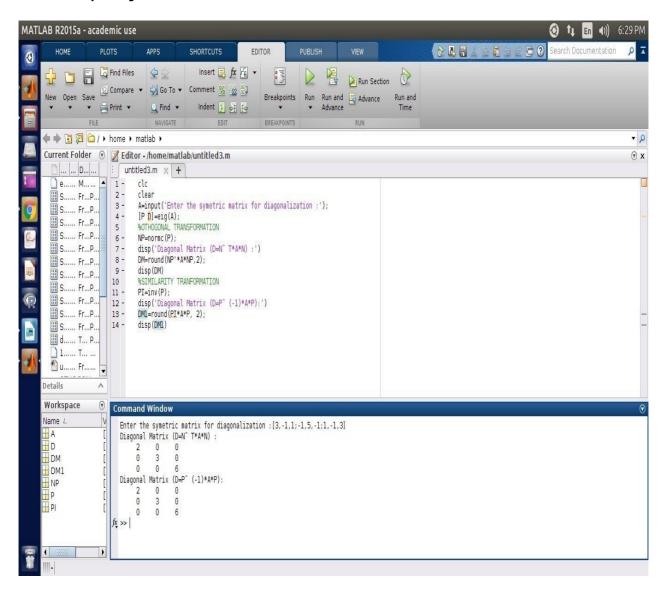
  ➢ **DATE: - 30th JANUARY 2019**

1. Diagonalize A = [1,6,1;1,2,0;0,0,3] by similarity transformation and hence find A^8.

2.Transform the quadratic form 13x^2 −10xy + 13y^2 to canonical form and specify the matrix of transformation.

3.Transform the quadratic form 3x^2 + 5y^2 + 3z^2− 2yz + 2zx − 2xy to canonical form and specify the matrix of transformation.

MATLAB R2015a - academic use

```
1   clc
2   clear
3   A=input('Enter the symetric matrix for diagonalization :');
4   [P D]=eig(A);
5   %OTHOGONAL TRANSFORMATION
6   NP=normc(P);
7   disp('Diagonal Matrix (D=N^ T*A*N) :')
8   DM=round(NP'*A*NP,2);
9   disp(DM)
10  %SIMILARITY TRANFORMATION
11  PI=inv(P);
12  disp('Diagonal Matrix (D=P^ (-1)*A*P):')
13  DM1=round(PI*A*P, 2);
14  disp(DM1)
```

Command Window

```
Enter the symetric matrix for diagonalization :[3,-1,1;-1,5,-1;1,-1,3]
Diagonal Matrix (D=N^ T*A*N) :
    2    0    0
    0    3    0
    0    0    6
Diagonal Matrix (D=P^ (-1)*A*P):
    2    0    0
    0    3    0
    0    0    6
fx >>
```

----------------THANK YOU----------------