Table of Contents

```
%%Question 1:

% System 1 and 2
A = [0 1; 1 0];
B1 = [0;-2];
B2 = [0;2];
C = [1 0];

% Controllability test
rank(ctrb(A,B1))
rank(ctrb(A,B2))

% Observability testU
rank(obsv(A,C))


ans =

     2


ans =

     2


ans =

     2
```

Question 3

a)

```
A = [-2 4; 1 1];
b = [1;1];
C = [1 0];
eig(A);

syms s
C*inv(s*eye(2)-A)*B;
```

b)

```
syms t to
PHI = [1 0; 1/2*(t^2-to^2) 1];
A = diff(PHI,t)*inv(PHI)
```

Error using symengine
Dimensions do not match.

Error in sym/privBinaryOp (line 991)
*   Csym = mupadmex(op,args{1}.s, args{2}.s, varargin{:});*

*Error in * (line 312)*
*   X = privBinaryOp(A, B, 'symobj::mtimes');*

Error in Final (line 24)
*C*inv(s*eye(2)-A)*B;*

Published with MATLAB® R2018a