Ex. No. 8 **Stability Analysis using Root Locus**

Date:

Aim:

To analyse the stability of the system having open loop transfer function, $G(S) = \frac{K}{S(S+2)(S+4)}$ using root locus and verify it using MATLAB.

Apparatus Required:

Computer with MATLAB software

Theory:

Same problem we solved in class. Write the answer for that problem and paste the root locus graph in the observation.

Procedure:

1. Open MATLAB software
2. Open a new script file.
3. Type the program.
4. Save and Execute the program.
5. Click on the crossing point of the root locus to find the value of K and poles at the crossing point.
6. From the value of K, analyse the stability.

Program:

```
num=[1];
den=[1 6 8 0];
sys=tf(num,den)
rlocus(sys);
[K Poles]=rlocfind(sys);
```

Result:

Thus the root locus for the given transfer function was drawn and verified using MATLAB. The conditions for stability is _____.