**Experiment 2 – To find critical frequencies (poles and zeros) of LC Driving point impedance**

|  |  |
| --- | --- |
| **Domain** | **Mechanical, Electrical, Chemical, Civil** |
| **Course** | **Numerical Methods** |
| **Topic** | **Roots of Equation** |

|  |  |  |  |
| --- | --- | --- | --- |
| **Learning Objectives** | **Cognitive level** | **Task** | **Assessment questions** |
| Find the poles and Zeros of the given circuit | **Level 3 - Apply** | **Find the Poles and Zeros across the circuit**  **C:\Users\HP\Pictures\Screenshots\Screenshot (206).png**  **C2**  C1  **L2**  **L1** | **The Poles and Zeros are(Given L1 = 8H ,L2 = 2H , C1 = 1.25F and C2 = 0.25F)**   1. **S = 0 and S = 0 + 0.258i** 2. **S = 0 and S = 0 + 0.516i** 3. **S = 0 and S = 0 + 0.1254i** 4. **S = 0 and S = 0 + 0.774i** |
| Second order LC circuit | **Level 4 - Analyse** | **Find the number of poles and zeros in the second order circuit below:**  **C:\Users\HP\Pictures\Screenshots\Screenshot (209).png**  **C1 C1**  **C2**  **L1 L2** | The number of poles(P) and zeros(Z) in the given second order circuit ( Given L1 = 8H, L2 = 8H and C1 = 3 and C2 = 5) A   P = 4 and Z = 2 B   P = 3 and Z = 3 C   P = 2 and Z = 4  D   P = 4 and Z = 3 |
| Poles and Zeros of series capacitor and parallel inductor | **Level 5- Evaluate** | **Find the poles and zeros for the following circuit:**  **C:\Users\HP\Pictures\Screenshots\Screenshot (212).png** | The poles and zeros of the circuit are:  A   **Poles are 5.8344e-17 ± 1.0000e+00j , -1.4452e-16 and Zeros are 0 + 0 j**  B    **Poles are 2.933e-17 ± 1.0000e+00j , -0.752e-16 and Zeros are 0 + 0 j**  -  C   **Poles are 1.16e-16 ± 1.0000e+00j , -1.4452e-16 and Zeros are 0 + 2 j**  . D   **Poles are 1.4516e-16 ± 1.0000e+00j , -0.7213e-16 and Zeros are 0 + 2 j**  . |