

**B.Tech. - VIEP - ELECTRICAL ENGINEERING  
(BTELVI)**

**00424** Term-End Examination

**June, 2017**

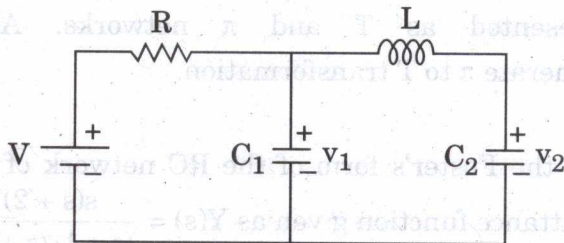
**BIEE-014 : NETWORK THEORY**

*Time : 3 hours*

*Maximum Marks : 70*

**Note :** Attempt any **seven** questions. Each question carries 10 marks. Use of scientific calculator is allowed.

1. Write the matrix loop equation for the network shown in Figure 1, using the loop analysis. 10



*Figure 1*

2. State Millman's theorem. Illustrate it for voltage source for an AC circuit. Derive the corresponding equations. 10

3. Determine the current  $I$  in Figure 2, using the Superposition theorem. 10

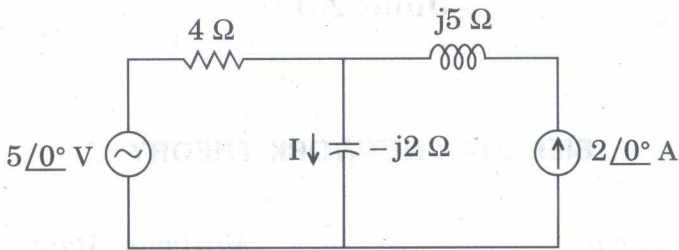


Figure 2

4. For a linear time invariant (LTI) two-port network, determine the ABCD parameters. Also derive the condition for reciprocity. 10

5. Explain how a transmission line can be represented as T and  $\pi$  networks. Also enumerate  $\pi$  to T transformation. 10

6. Find the Foster's form of the RC network of the admittance function given as  $Y(s) = \frac{s(s+2)}{(s+1)(s+3)}$ . 10

7. Derive the driving point function for an LC circuit connected in series and parallel. 10

8. What are the functions of filters ? Classify filters as low pass, high pass and band pass filters representing them with block diagrams. 10
9. Write short notes on any *two* of the following :  $2 \times 5 = 10$
- (a) Tie Set Matrix
  - (b) Compensation Theorem
  - (c) h Parameters for Two-Port Networks
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