

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE SEMESTER– 1<sup>st</sup> / 2<sup>nd</sup> (SPFU) EXAMINATION – WINTER 2016**

**Subject Code: ENG005****Date: 23/01/2017****Subject Name: Linear Electrical Networks****Time: 02:30 PM TO 5:00 PM****Total Marks: 70****Instructions:**

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

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|------------|--|-----------|
| <b>Q.1</b> | (a) Explain Kirchhoff's current and voltage law.   | <b>07</b> |
|            | (b) Explain Thevenin's theorem.  | <b>07</b> |
| <b>Q.2</b> | (a) Explain Superposition theorem.   | <b>07</b> |
|            | (b) Explain Series resonance condition with concept of Q-factor.                           | <b>07</b> |
| <b>Q.3</b> | (a) Explain the time domain behavior of one port passive network.                          | <b>07</b> |
|            | (b) What is Laplace transform? Explain importance and applications of Laplace transform.   | <b>07</b> |
| <b>Q.4</b> | (a) Explain hybrid parameters.   | <b>07</b> |
|            | (b) Explain series and parallel connection. Also compare them.                             | <b>07</b> |
| <b>Q.5</b> | (a) Explain Norton's theorem.  | <b>07</b> |
|            | (b) Explain pole-zero construction of RLC series circuit.                                  | <b>07</b> |
| <b>Q.6</b> | (a) Explain necessary conditions for Transfer Function.                                    | <b>07</b> |
|            | (b) Explain loop, node, path, network and circuit.   | <b>07</b> |
| <b>Q.7</b> | (a) Explain maximum power transfer theorem. Also discuss its advantages and disadvantages. | <b>07</b> |
|            | (b) Explain transformation of delta connected network into star connected network.         | <b>07</b> |

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