

D 20621

(Pages : 2)

Name .....

Reg. No. ....

**THIRD SEMESTER B.TECH (ENGINEERING) DEGREE EXAMINATION  
OCTOBER 2011**

EC 09 303/PT EC 09 302—NETWORK ANALYSIS AND SYNTHESIS

(2009 admissions)

Time : Three Hours

Maximum : 70 Marks

**Part A**

*Answer all questions.*

1. Write Thevenin's theorem.
2. Draw the step response of a RLC network.
3. Write the concept of complex frequency.
4. List the types of filters.
5. Give example for even and odd functions.

(5 × 2 = 10 marks)

**Part B**

*Answer any four questions.*

6. Construct a R.C. integrator and explain.
7. Explain maximum transfer theorem with example.
8. List the restriction of poles and zeros in the driving point and transfer function.
9. Give the basic passive realization of Butterworth transfer functions.
10. Explain the properties of Hurwitz polynomials.
11. Define the parameters of two port network.

(4 × 5 = 20 marks)

**Part C**

*Answer Section (a) or (b) of each questions.*

12. (a) Discuss the transformation of a circuit into S-domain and also discuss the node analysis and mesh analysis of the transformed circuit.

*Or*

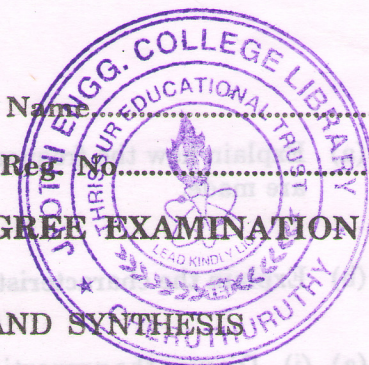
- (b) Explain the transient analysis of RC and LC networks with impulse, step and ramp inputs. (10 marks)

13. (a) Explain the poles and zeros of network functions and their locations, effects on the time and frequency domain responses.

*Or*

- (b) Discuss the concepts of interconnected two port networks with example. (10 marks)

**Turn over**



14. (a) Explain how the frequency transformations to high pass, band pass and band eliminations are made.

Or

(b) Explain the characteristics of Butterworth and Chebyshev filters with neat diagrams. (10 marks)

15. (a) (i) Discuss the properties of positive real functions. (5 marks)

(ii) What is meant by driving point function? (5 marks)

Or

(b) Discuss the properties of RC network functions and Foster and Cauer forms of RC and RL networks. (10 marks)

(4 x 10 = 40 marks)

(5 x 2 = 10 marks)

Part B

Answer any four questions

- 6. Construct a RC integrator and explain.
- 7. Explain maximum transfer theorem with example.
- 8. List the restriction of poles and zeros in the driving point and transfer function.
- 9. Give the basic passive realization of Butterworth transfer functions.
- 10. Explain the properties of Hurwitz polynomials.
- 11. Define the parameters of two port network.

(4 x 5 = 20 marks)

Part C

Answer Section (a) or (b) of each question.

12. (a) Discuss the transformation of a circuit into s-domain and also discuss the node analysis and mesh analysis of the transformed circuit.

Or

(b) Explain the transient analysis of RC and LC networks with impulse, step and ramp inputs. (10 marks)

13. (a) Explain the poles and zeros of network functions and their locations, effects on the time and frequency domain responses.

Or

(b) Discuss the concepts of inter-connected two port networks with example. (10 marks)

Turn over