

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(ECE)(Sem.-3)
NETWORK ANALYSIS AND SYNTHESIS

Subject Code :BTEC-303

M.Code : 96262

Date Of Examination : 13-12-2025

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Write briefly :

- a) Draw ramp signals.
- b) Define instantaneous value.
- c) What are advantages of maximum power theorem?
- d) Write node equation.
- e) What do you mean by frequency analysis?
- f) Give relationship between transfer and impulse response.
- g) Explain steady response.
- h) Draw stop bands filter.
- i) What is the need of filters?
- j) Draw ladder network.

SECTION - B

2. Explain steps to apply Thevenin's theorem.
3. Find out the Laplace transform of $f(t) = e^{at}$ for $t \geq 0$.
4. Draw and explain poles and zeros on the positive real axis.
5. Derive expression for network synthesis for 2 terminal networks.
6. Design a constant k LPF with $f_c = 1$ kHz and $R_o = 600 \Omega$. At what frequency α will be 10 dB?

SECTION - C

7. Explain time domain behaviour from poles and zeros.
8. Design Foster I and Foster II forms.
9. Draw and explain m-derived filters.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.