

2056
B.E. (Electronics and Communication Engineering)
Fourth Semester
EC-409: Network Analysis

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit. Use of scientific calculator is allowed.

x-x-x

1. Attempt all questions: -

- (a) Define drift velocity.
- (b) What is resistivity?
- (c) Define voltage division rule.
- (d) What is transfer function?
- (e) Define stability of network.
- (f) What are Y-parameters?
- (g) Define image impedance.
- (h) What is band-pass filter?
- (i) Define propagation constant.
- (j) What is standing wave ratio?

(10x1)

UNIT - I

- 2. (a) Explain current division rule and derive its expression. (5)
(b) Two resistors 8Ω and 12Ω are connected in parallel across 24V supply.
Find current through each resistor. (5)
- 3. (a) State and explain Norton's theorem with procedure. (6)
(b) Convert a current source of 5A in parallel with 10Ω into equivalent voltage source. (4)
- 4. (a) Explain poles and zeros of network functions and their effect on system response. (5)
(b) Find zeros of network function:
 $H(s) = (s + 2)(s + 5) / (s^2 + 4s + 3)$. (5)

P.T.O.

(2)

UNIT - II

5. (a) Explain band-pass and band-stop filters with characteristics. (6)
(b) A high-pass filter has $L = 1 \text{ mH}$ and $C = 0.25 \text{ } \mu\text{F}$. Find cutoff frequency. (4)
6. (a) Explain input impedance of transmission line and its dependence on load. (7)
(b) A lossless line has $Z_0 = 50\Omega$, $Z_L = 100\Omega$. Find reflection coefficient. (3)
7. (a) Explain open and short-circuited transmission lines. (7)
(b) A filter has lower cutoff 1 kHz and upper cutoff 5 kHz . Find bandwidth. (3)

x-x-x