Roll No. .....

3038

B. Tech (ECE) 3rd Semester Examination – February, 2022

NETWORK THEORY

Paper : PCC-ECE-211-G

Time : Three hours] *[Maximum Marks : 75*

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Question No.1 is ***compulsory***. Attempt ***five*** questions in all taking ***one*** question from each Unit.

1. (a) Define unilateral and bilateral elements. 2.5

(b) Explain the term Node and mesh analysis. 2.5

(c) Explain in brief the concept of duality. 2.5

(d) What do you mean by singularity function. 2.5

(e) Explain in brief the power factor. 2.5

(f) Define band reject filters. 2.5

UNIT – I

2. Find the current through 5Ω resistor in the figure given below using thevenins Theorem. 15

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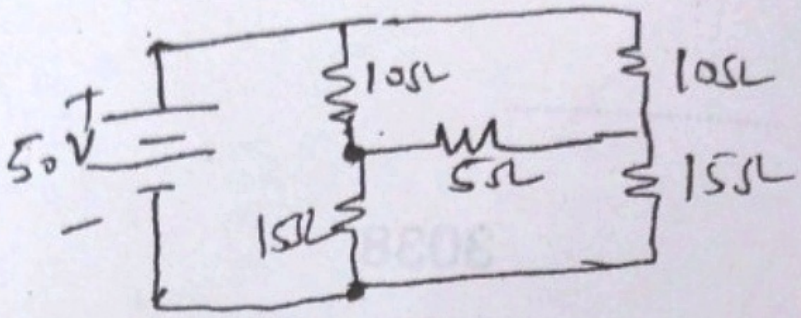

3. (a) State and prove maximum power transfer theorem. 8

(b) Explain in detail the matrix approach of network containing voltage and current sources. 7

UNIT – II

4. State and prove the properties of Laplace transform. 15

5. (a) Explain the relationship between trigonometric and exponential fourier series. 8

(b) Explain in detail the Waveform synthesis. 7

UNIT – III

6. Explain the following :

(i) Convolution theorem 8

(ii) Behaviour of series and parallel resonant circuit. 7

7. Derive an expression for the transient response of series RC circuit having DC excitation. 15

UNIT – IV

8. Write short note on the following :

(a) Short circuit admittance parameters 8

(b) Transmission parameters 7

9. (a) Derive an expression for the interconnection of two port network in parallel. 8

(b) Explain in detail the principles of network topology. 7