

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.

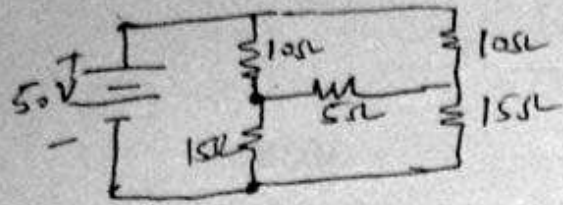
Note : Question No.1 is compulsory. Attempt five questions in all taking one question from each Unit.

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| 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