

Roll No.

3040

**B. Tech. 3rd Semester (EE)
Examination – March, 2021**

ELECTRIC CIRCUIT ANALYSIS

Paper : PCC-EE-201-G

Time : Three Hours]

[Maximum Marks : 75

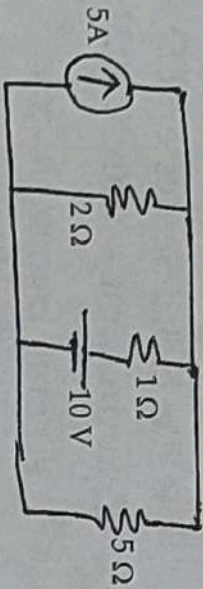
Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt five questions in all, selecting one question from each Unit. Question No. 1 is compulsory. All question carry equal marks.

1. Answer the following questions in brief : $6 \times 2.5 = 15$
- (a) What is final condition in network elements ?
 - (b) What do you mean by steady and transient state response ?
 - (c) What is admittance ?
 - (d) What do you mean by mutual coupled circuit ?
 - (e) What is transfer function ?
 - (f) What is Mesh analysis ?

UNIT - I

2. (a) State and prove the Venin's Th^m. 5
 (b) Determine current through 5 Ω resistance of network shown in fig. by Theverin's Th^m: 10



3. (a) State and prove maximum power transfer theorem. 10
 (b) Define and explain the concept of duality and dual networks. 5

UNIT - II

4. Derive solution of second order differential equations for series R-L-C circuit. 15
5. (a) Find current in a series R-L circuit having R = 2Ω and L = 10 H while a DC voltage of 100 V is applied. What is the value of this current after 5 sec. of switching ON? 10
 (b) Give brief idea of forced and free response. 5

UNIT - III

6. (a) Test whether the function is Hurwitz or not 10
 $S^4 + 3S^2 + 2$

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-(P-3)(Q-9)(21)

(2)

- (b) Check whether the function is p.r.f. or not

$$F(s) = \frac{s^2 + s + 6}{s^2 + s + 1}$$

5

7. Check whether the function is p.r.f. or not 15
 $\frac{(s+1)(s+2)}{s(s+4)(s+25)}$

UNIT - IV

8. (a) Explain cut set and tie-set in graph theory. 10
 (b) Explain condition of reciprocity in Z, Y, T and H parameter. 5
9. Derive the equation for Z-parameter and also explain Z-parameter in terms of other parameters. 15

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-(P-3)(Q-9)(21)

(3)