

# Agnihotri Engineering & GATE Classes

Scripting success stories

## UNIT 1<sup>st</sup> :- DC & AC Circuit Analysis

### Resistor(R) , Inductor (L) & Capacitor (C) combination based Questions

#### Basic Electrical

&

#### Electronics Engineering (BE-1114)

##### Unit I

**Electrical circuit analysis-** Voltage and current sources, dependent and independent sources, source conversion, DC circuits analysis using mesh & nodal method, Thevenin's & superposition theorem, star-delta transformation.

1-phase AC circuits under sinusoidal steady state, active, reactive and apparent power, physical meaning of reactive power, power factor, 3-phase balanced and unbalanced supply, star and delta connections.

##### Unit II

**Transformers-**Review of laws of electromagnetism, mmf, flux, and their relation, analysis of magnetic circuits. Single-phase transformer, basic concepts and construction features, voltage, current and impedance transformation, iron losses and copper losses, equivalent circuit, phasor diagram.

##### Unit III

**Rotating Electric machines-** Constructional details of DC machine, induction machine and synchronous machine, Working principle of DC machines, classification of DC machine, EMF equation, armature reaction, characteristic of separately excited and self excited generator. Working principle of DC motor, Importance of back EMF, Starting of DC motor, speed torque characteristic of separately excited and self excited DC motor.

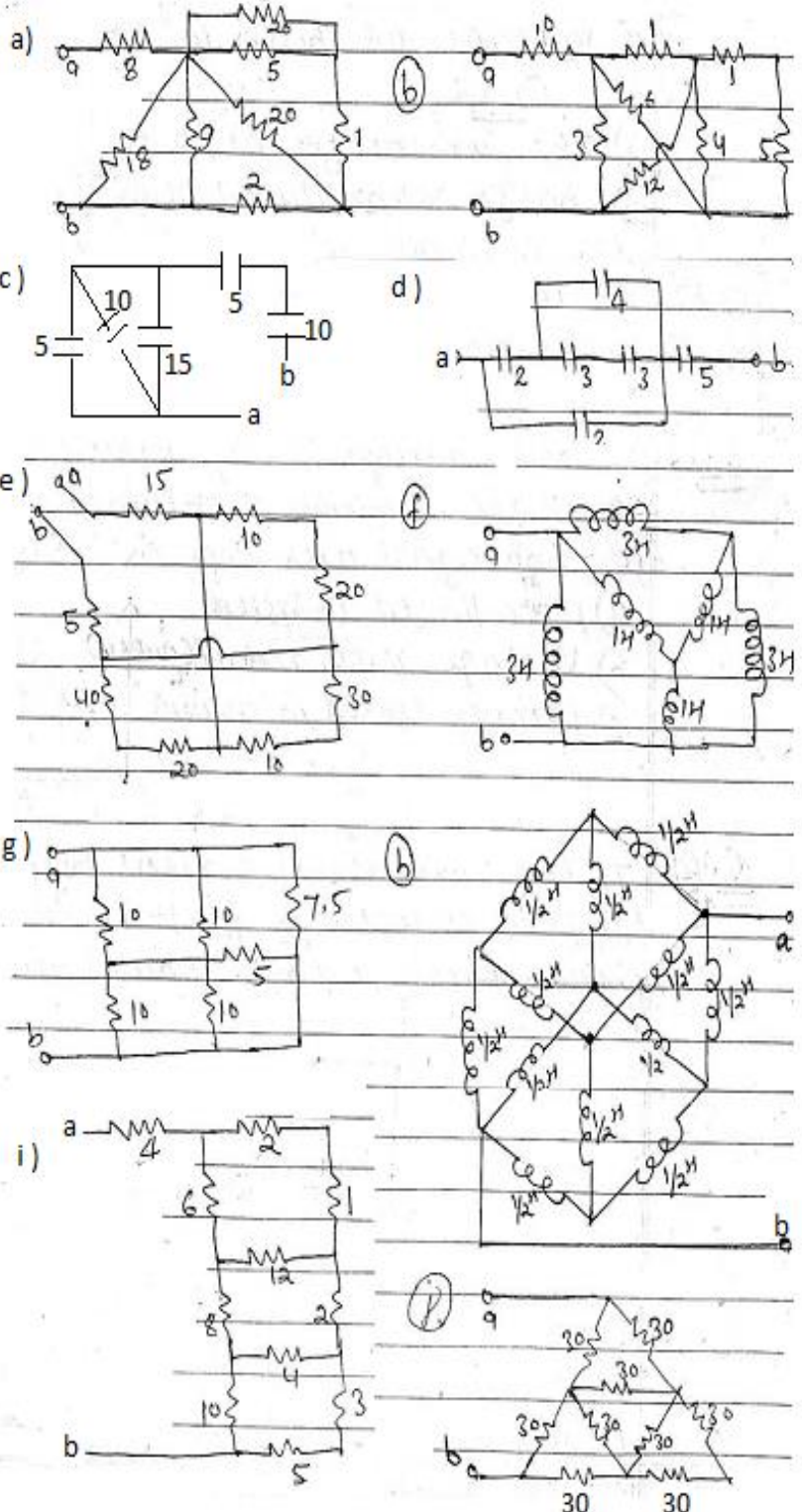
##### Unit IV

**Measuring Instruments :** Construction and operation of moving coil, moving iron ammeter and voltmeter, hotwire instruments, theory and operation of D'Arsonval, Ballistic and vibration galvanometer, instrument transformers, extension of instrument ranges, AC and DC current probes.

##### Unit V

**Electronics:** Binary Number system binary addition, subtraction, multiplication and division, subtraction operation using 1's and 2's complement forms, Octal number system, hexadecimal number system conversion of number system from one number system to another number system, types of Resistor, Inductor and capacitor, color coding of resistor and capacitor P-type and N-type semiconductor, semiconductor diode its operation in forward and reverse bias , V-I characteristics, half wave and full wave rectification, application.

#### Q.1) Find equivalent value across a-b?



Classes on (ED,BEEE,M1,M2,M3,NA,CONTROL,DSP & other GATE oriented Engineering Subjects)

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