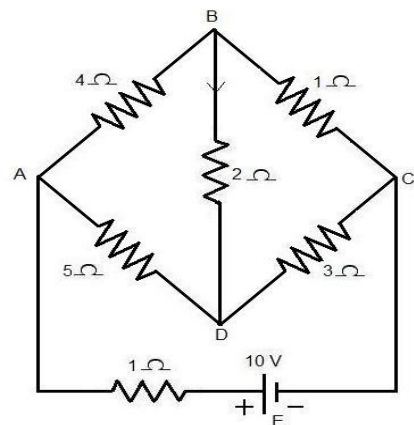
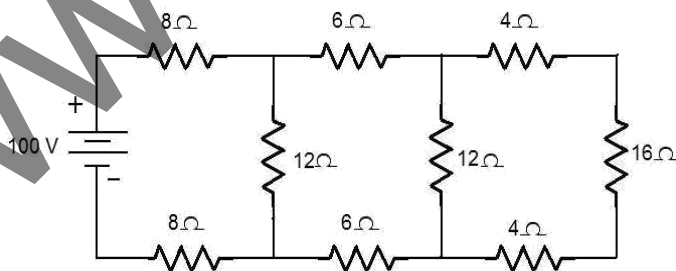
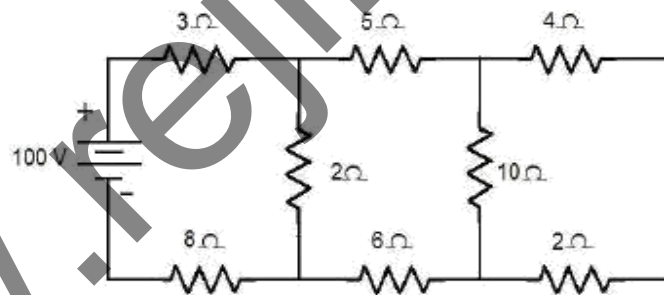


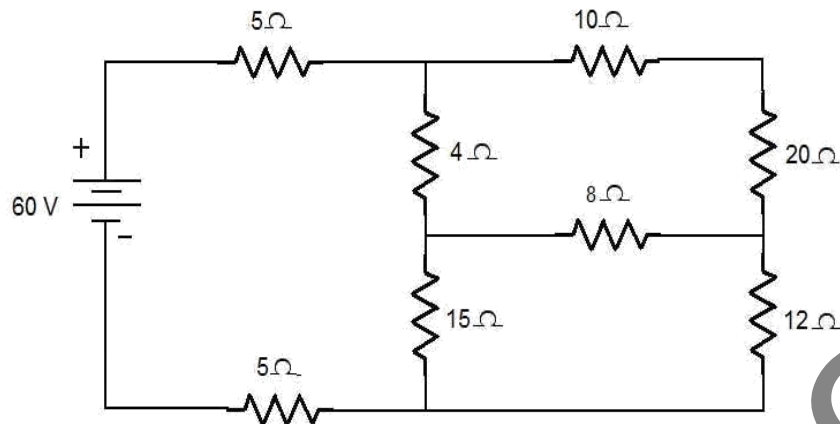
ELECTRICAL CIRCUITS AND MEASUREMENTS

PART – B

1. (a) State and explain Kirchoff's law. (8)
- (b) Explain the working of a Dynamometer wattmeter with a neat sketch. (8)
2. (a) Explain any one type of MI instruments. (8)
- (b) Explain the working principle of PMMC instruments. (8)
3. Explain the construction and principle of operation of single phase energy meter.* (16)
4. (a) A series circuit has $R=10\ \Omega$, $L=50\text{mH}$, and $C=100\mu\text{F}$ and is supplied with $200\text{V}, 50\text{Hz}$. Find (i) Impedance (ii) current (iii) power (iv) power factor (v) voltage drop across the each element.* (8)
- (b) Derive the equation for equivalent resistance of number of resistors connected in Parallel and series.* (8)
5. A 400V is applied to three star connected identical impedances each consisting of a 40Ω resistance in series with $3\ \Omega$ inductance reactance. Find (i) line current (ii) Total power supplied. (16)
6. Find the current through each branch by network reduction technique. (16)

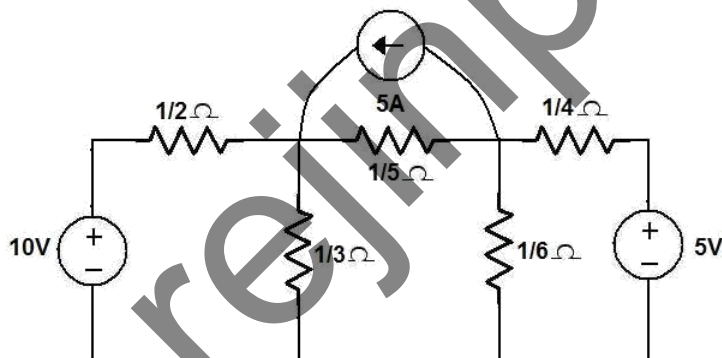


9. (a) In the network shown below, find the current delivered by the battery.* (10)



- (b) Discuss about voltage and current division principles. (6)

10. Using the node voltage analysis, find all the node voltages and currents in $\frac{1}{3}$ ohm and $\frac{1}{5}$ ohm resistances of figure



UNIT – II

ELECTRICAL MACHINES PART – B

1. Explain the construction and principle of operation of a DC generator with neat sketch. (16)
2. (a) Derive the equation for induced EMF of a DC machine. (8)
- (b) Derive the torque equation of DC motor. (8)
3. Describe the construction details of transformer and also explain the principle of operation. (16)
4. (a) Derive the EMF equation of a transformer. (8)

- (b) Explain the principle of operation of DC Motor. (8)
5. Explain the construction and principle of operation of single phase induction motor. (16)
6. A transformer with 40 turns on the high voltage winding is used to step down the voltage from 240V to 120V. Find the number of turns in the low voltage winding (16)
7. A 4 pole, wave wound generator having 40 slots and 10 conductors placed per slot. The flux per pole is 0.02 wb. Calculate the generated emf when the generator is drive at 1200 rpm (16)
8. A 25kw, 250V, dc shunt generator has armature and field resistances of 0.06ohm and 100ohm respectively. Determine the total armature power developed when working (1) as a generator delivering 25 kw output and (2) as a motor taking 25kw. (16)

UNIT – III
SEMICONDUCTOR DEVICES AND APPLICATIONS
PART – B

1. Explain intrinsic and extrinsic semiconductors with neat diagrams. (16)
2. Describe the working of a PN junction diode with neat diagrams. Also explain its V-I characteristics.* (16)
3. What is a Zener diode? Explain the operation of Zener diode and draw its characteristics. (16)
4. Explain the operation of half wave rectifier with neat sketch and derive the necessary expression. (16)
5. Explain the operation of centre tapped full wave rectifier with neat diagram. (16)
6. Explain with a neat diagram how the input and output characteristics of a CE configuration can be obtained.* (16)
7. Compare the input resistance, output resistance and voltage gain of CB, CC and CE configuration.* (16)
8. Explain the working of the CB configuration of a BJT. (16)
9. Explain in detail about small signal CE amplifier.* (16)

UNIT – IV
DIGITALS ELECTRONICS
PART – B

1. Draw and explain the operation of AND, OR, NOT, NAND and NOR gates with suitable truth table.

2. Explain half adder and full adder.
3. Design a full adder and implement it using logic gates.*
4. Briefly explain the working of JK flip flop.* (16)
5. Explain the operation of RS flip-flop with logic diagram and truth table. (16)
6. With necessary diagrams explain the functioning of the following: (16)
 - i). Decade counter ii). D/A converter
7. What is a counter? Discuss briefly about Mod-5 counter.* (16)
8. With necessary diagrams explain the functioning of any one type of A/D converter and D/A converter. (16) *
9. Draw a neat diagram of a decade counter and explain the working of the decade counter with suitable waveforms and truth table (16)
10. Describe the operation of a 4-bit binary, ripple counter.

UNIT – V
FUNDAMENTALS OF COMMUNICATION ENGINEERING
PART – B

1. (a) With neat diagram, explain the principle of operation of Amplitude Modulation. Derive its power relations.* (10)
 - (b) Write detailed notes on microwave communication. (6)
2. (a) Explain a) satellite communication system. b) balanced modulator * (12)
 - (b) Write short notes on modulation and demodulation (4)
3. Draw the block diagram of radio broadcasting and reception system and explain the function of each block.* (16)
4. (a) With a neat block diagram, explain the principle of operation of FAX.* (8)

5. (a) With help of a neat diagram explain the basic components of satellite communication.* (8)
- (b) Explain the block diagram of optical fiber communication systems. (8)
6. Explain the principle of Amplitude and Frequency modulation.
7. Draw and explain the functional block diagram of Monochrome TV transmitter and receiver.*