DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

Course Code & Name: 23EET103 – Electric Circuits and Electron Devices
Course Faculty : Ms. R. Saranya

Question Bank

Unit I- DC CIRCUITS

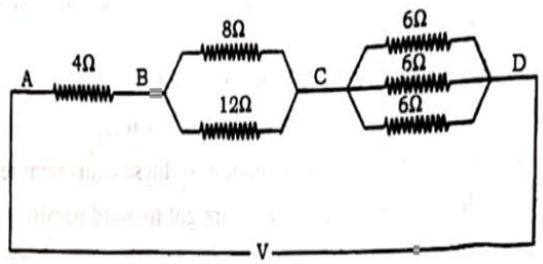
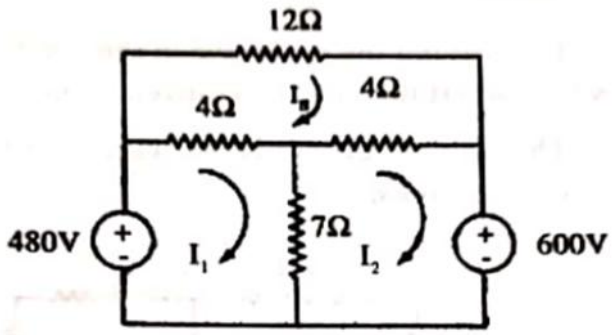
Part A- Two Mark Questions

Q.No	Questions	Bloom Level	Company/Industry
1	Define electric current and state its unit.	CO1	Texas Instruments
2	State Ohm's Law with formula.	CO1	Analog Devices
3	Define electrical power and write its formula.	CO1	Schneider Electric
4	Define electrical energy and mention its unit.	CO1	Siemens
5	Define active and passive element.	CO1	STMicroelectronics
6	Define resistance and write its formula.	CO1	Texas Instruments
7	Define capacitance and also list out its application	CO1	Schneider Electric
8	Define Inductance and also list out its application	CO1	General Electric (GE)
9	Compare Capacitance and Inductance	CO1	Texas Instruments
10	Differentiate between Series and Parallel circuits	CO1	General Electric (GE)
11	Differentiate between Ideal and Practical sources	CO1	Siemens
12	State Kirchhoff's Current Law (KCL).	CO1	GATE (2018)
13	State Kirchhoff's Voltage Law (KVL).	CO1	GATE (2019)
14	A USB port supplies 5V and 2A to a device. Calculate the power delivered.	CO2	Intel
15	A 12V adapter supplies 3A to a Wi-Fi router. Find the resistance of the load.	CO2	Cisco
16	Two resistors of 10Ω and 20Ω are connected in series. Find total resistance.	CO2	Bosch

17	Two 10Ω resistors are connected in parallel. Find equivalent resistance.	CO2	GATE (2016)
18	A 12V battery supplies 2A. Calculate power delivered.	CO2	Huawei Technologies
19	A 200W server runs for 3 hours. Calculate energy consumed in kWh.	CO2	Amazon Web Services
20	Define internal resistance of a battery.	CO1	Panasonic Corporation
21	A 24V supply delivers 4A to a load. Find the resistance.	CO2	Delta Electronics
22	What is meant by efficiency of a DC power supply?	CO1	Emerson Electric
23	Why are parallel circuits used in homes and server rooms?	CO1	Microsoft
24	A 5Ω resistor carries 2A current. Find voltage across it.	CO2	GATE (2020)
25	A 48V battery supplies 5A. Find the power delivered.	CO2	Exide Industries
26	A 12V, 100Ah UPS battery supplies a 120W load. Estimate backup time.	CO2	APC by Schneider Electric
27	What happens if excessive current flows through a motherboard circuit?	CO3	NVIDIA

Part B - 16 Mark Questions

Q.No	Questions	Bloom Level	Company/Industry
1	Define the following with the units and formula (i) Voltage (ii) Current (iii) Power (iv) Energy (V) Resistance	CO1	Texas Instruments
2	Illustrate Kirchoff's Laws with suitable examples.	CO1	Microsoft
3	Write a short note on Resistive elements	CO1	General Electric (GE)
4	A 12V DC supply is connected to two resistors of 4Ω and 8Ω in series. Calculate: (i) Total resistance (ii) Circuit current (iii) Voltage drop across each resistor (iv) Total power consumed.	CO2	Emerson Electric
5	A 24V DC supply is connected to two resistors of 6Ω and 12Ω in parallel. Calculate: (i) Equivalent resistance (ii) Total current (iii) Branch currents (iv) Total power consumed.	CO2	GATE (2018)
6	A 5V microcontroller circuit uses a 220Ω resistor and draws 20mA current. Calculate: (i) Voltage drop across resistor (ii) Power dissipated (iii) Energy consumed in 2 hours.	CO2	Texas Instruments
7	A laptop battery rated 12V supplies 5A to the system. Calculate: (i) Power delivered (ii) Energy consumed in 4 hours.	CO2	Dell Technologies

8	A 48V UPS system supplies 8A to a server rack. Calculate: (i) Power delivered (ii) Energy consumed in 5 hours (iii) Backup time if battery capacity is 100Ah.	CO2	Google
9	A series circuit contains three resistors of 5Ω, 10Ω and 15Ω connected to a 30V supply. Calculate total resistance, total current, voltage across each resistor and power consumed.	CO2	Bosch
10	A parallel circuit has three resistors of 12Ω, 6Ω and 4Ω connected across 24V. Calculate branch currents and total power.	CO2	GATE (2019)
11	A 12V battery with internal resistance 0.5Ω supplies a load of 5Ω. Calculate: (i) Total current (ii) Terminal voltage (iii) Power delivered to load.	CO2	Siemens
12	A small server lab contains three devices rated 300W each operating at 48V DC. Calculate total current drawn and energy consumed in 6 hours.	CO2	Microsoft
13	Using Kirchhoff's Voltage Law, verify that the sum of voltage drops equals supply voltage in a circuit with 20V source and resistors 5Ω and 15Ω in series.	CO2	GATE (2020)
14	Find the effective equivalent resistance for the below circuit. 	CO2	Google
15	Find the mesh current by direct inspection method. 	CO2	Amazon