GALGOTIAS UNIVERSITY

ADMISSION NUMBER												

School of Basic Sciences

Bachelor of Science Honours in Physics
Mid Term Examination - May 2024

Duration : 90 Minutes
Max Marks : 50

Sem II - C1UD202B - Electric Circuits and Networks

General Instructions
Answer to the specific question asked
Draw neat, labelled diagrams wherever necessary
Approved data hand books are allowed subject to verification by the Invigilator

1)	Interpret the series connection of a resister and obtain the equivalent series resistance in a circuit.	K2 (2)
2)	Explain the different ways of connection of a resister in circuit.	K1 (3)
3)	Apply the concept of equivalent resistance connected in parallel, and find the equivalent resistance of a circuit in which three resistance of 10, 20 and 50 ohms are connected in parallel.	K2 (4)
4)	Derive current and voltage of a pure capacitive AC circuit and draw the phasor diagram	K2 (6)
5)	Three resistors are connected in series across a 20-V battery. The first resistor has a value of 1 ohm second has a voltage drop of 6 V and the third has a power dissipation of 12 W. Calculate the value of the circuit current.	K3 (6)
6)	Describe Kirchhoff's laws to solve the electrical circuits	K3 (9)
7)	Explain the charging and discharging mechanism of a capacitor in a circuit.	K4 (8)
8)	Analyse the factors on which the capacitance of a capacitor depend. What is the capacitance of a capacitor if a charging current of 200 mA flow when the applied voltage changes 10 V at a frequency of 50 Hz?	K4 (12)

OR

Determine the source current and currents in each branch if the supply voltage is 20V and R1=20k ohm and R2=40k ohm K4 (12)