GALGOTIAS UNIVERSITY

ADMISSION NUMBER												

School of Engineering

M.Tech Power System Engineering
Mid Term Examination - Nov 2023

Duration : 90 Minutes
Max Marks : 50

Sem I - G2PI104C - Advanced Power System Analysis

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)	Differentiate between load flow and optimal power flow.	K2	(2)
2)	Rewrite the power flow equation in polar form.	K1	(3)
3)	Explain the assumptions made in Decoupled Newton Raphson power flow method.	K2	(4)
4)	Illustrate the Newton Raphson load flow method with the solution procedure using a neat steps.	K2	(6)
5)	Derive Active and Reactive power equation using DC model assumptions.	K3	(6)
6)	Construct limitations of the Gauss-Seidel method and Newton-Raphson load flow method.	K3	(9)
7)	Categorise the classification of buses in load flow studies and explain them.	K4	(8)
8)	Examine the neccessity of per unit system application in power system representation and calculation of the network parameters with a suitable example.	K4	(12)

OR

	Analyse the DC power flow solution for the five-bus system where B and P values are given in the following matrices.	K4	(12)

$$B = \begin{bmatrix} -30 & 0 & 10 & 20 \\ 0 & -100 & 100 & 0 \\ 10 & 100 & -150 & 40 \\ 20 & 0 & 40 & -110 \end{bmatrix}; \Delta P = \begin{bmatrix} -8.0 \\ 4.4 \\ 0 \\ 0 \end{bmatrix}$$