Regulation R18 *Subject code: 2P6BC*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech VI Semester Supplementary Examinations, February 2024

POWER SYSTEM ANALYSIS

(EEE)

Maximum Marks: 70 Date:20.02.2024 Duration: 3 hours

Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit which carries 10M.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

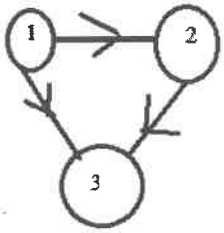
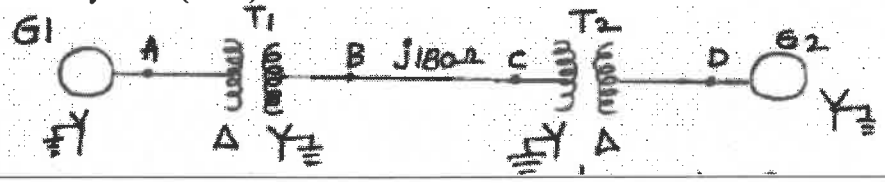
All the following questions carry equal marks (10x2M=20 Marks)		CO	Bloom Tx
1	What is the basic compound of power system.	CO1	L1
2	Define primitive net work.	CO1	L1
3	What are advantages of Gause shield method in load flow.	CO2	L1
4	Define slack bus	CO2	L1
5	Why line- line fault zero sequence current are absent	CO3	L1
6	Draw the 1-phase positive sequence network	CO3	L1
7	Draw the power angle curve.	CO4	L1
8	What are the method to improve steady state stability?	CO4	L1
9	Define Torque angle	CO5	L1
10	Define inertia constant.	CO5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)			
11	Form the Y_{bus} for a given network by using direct inspection method. As shown Table (10M)	CO1	L2

Element	Positive sequence reactance
1-2	0.5j
1-3	0.25j
2-3	0.6j
2-4	0.8j
3-4	0.9j

	OR		
12	Form the Z_{bus} for a given Table As shown . take bus 1 as reference. As shown in figure. (10M)	CO1	L2

	 Element | impedance 1-2 | 0.3j 1-3 | 0.4j 2-3 | 0.5j		
13	Briefly write and derivation of Newton raphsor method in polar for. (10M)	CO2	L1
	OR		
14	Derivation of static load flow equation of load flow studies with assumption. (10M)	CO2	L2
15.	Draw the positive sequence, Negative sequence and Zero sequence for given power system. (10M)  	CO3	L1
	OR		
16	The phase voltages across a certain load given as follows: (10M) V_a=176-132j V, V_b=-128-96j V, V_c=-160+100j V Compute the positive, negative and zero sequence components of voltage.	CO3	L1
17	A.A synchronous machinbe having E=1.2 pu is supplying power to an infinite bus with volage 1.0 pu , if the transfer reactance is 0.6pu, find the steady state w power limit. (4M) B. List the assumption Made in the transient stability solution techniques (6M)	CO4	L2
	OR		
18	Two turbo alternator with rating given below are connection via short line. Macine-1: 4-pole, 50hz, 80MW, 0.6 P.F Lagging. Moment of inertia 20,000Kg-m^2 Macine-2: 2-pole, 50hz, 80MW, 0.85 P.F Lagging. Moment of inertia 20,000 Kg-m^2 Calculate the inertia constant of single equation machine on base of 300MVA (10M)	CO4	L2
19	A. Define following terms (6M) 1 Steady state stability limit 2.Dynamic state stability limit B. Write about transfer reactance 4M	CO5	L1
	OR		
20	Explain point by point method of solving swing equation. (10M)	CO5	L3