Question Paper Code: R22A22EE03

R22

ANURAG Engineering College

(An Autonomous Institution)

II B.Tech II Semester Regular Examinations, June/July – 2024

POWER SYSTEM-II

(ELECTRICAL AND ELECTRONICS ENGINEERING)

Time: 3 Hours **Max. Marks: 60**

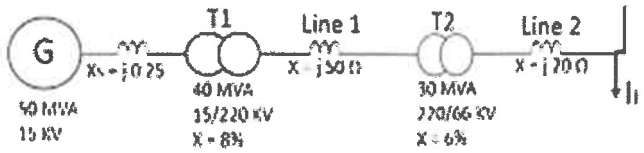
Section – A (Short Answer type questions) (10 Marks)

Answer All Questions		Course Outcome	B.T Level	Marks
1.	What are nominal T and Pi networks	CO1	L1	1M
2.	What is meant by Ferranti effect	CO1	L1	1M
3.	Give comparison between uncompensated and compensated lines.	CO2	L1	1M
4.	List different power factor improvement methods	CO2	L1	1M
5.	What is the Per unit system?	CO3	L1	1M
6.	What is meant by attenuation	CO3	L1	1M
7.	Explain the need for protection in a power system	CO4	L1	1M
8.	Explain the term counter poise	CO4	L1	1M
9.	What are symmetrical components?	CO5	L1	1M
10.	What is meant by a symmetrical fault.	CO5	L1	1M

Section B (Essay Questions)

Answer all questions, each question carries equal marks. **(5 X 10M = 50M)**

11. A)	A 3-phase 50 Hz transmission line has resistance, inductance and capacitance per phase of 10Ω, 0.1 H and 0.9 μF respectively and delivers a load of 35 MW at 132 kV and 0.8 p.f. lag. Determine the efficiency and regulation of the line using (i) nominal-T, (ii) nominal-π.	CO1	L3	10M
	OR			
B)	What is meant by corona? Explain different factors affecting corona and discuss the methods to reduce corona	CO1	L2	10M
12. A)	Enumerate the working of tap changing transformers, synchronous phase modifiers for voltage regulation	CO2	L2	10M
	OR			
B)	Describe clearly what you mean by compensation of lines? Discuss different methods of compensation.	CO2	L2	10M
13. A)	What are travelling waves? how they are formed? List the disadvantages and method of protection from travelling waves.	CO3	L3	10M
	OR			
B)	Assume a system wide S_{base} of 100MVA. Calculate P.U impedances of the given system	CO3	L3	10M



14. A)	What are ground rods and counterpoises? Discuss clearly how these can be used to improve the grounding conditions. Give various arrangements of counterpoise.	CO4	L2	10M
	OR			
B)	What are volt-time curves explain their significance in power system protection	CO4	L3	10M
15. A)	A 30 MVA, 11 kV star connected generators has positive, negative and zero sequence reactance's of 30 %, 25 % and 10% respectively. A reactor with 6% reactance based on the rating of the generator is placed in the neutral to ground connection. A line to ground fault occurs at the terminals of the generator when it is operating at rated voltage. Determine the initial symmetrical line to ground rms fault current. Also find the line-to-line voltages.	CO5	L3	10M
	OR			
B)	Explain the sequence impedances in detail. Drive the expression for sequence impedance in single line to ground fault	CO5	L3	10M