R18 Regulation *Subject code:2E7BC*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VII Semester Supplementary Examinations, November 2023

FLEXIBLE AC TRANSMISSION SYSTEMS

(EEE)

Maximum Marks: 70 Date:12.12.2023 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)	Bloom Tx
1	What are the objectives of FACTS controllers?	L1
2	What are the basic types of FACTS controllers?	L1
3	How shunt compensation is classified?	L1
4	What are the characteristics differences between TSSC and TCSC?	L1
5	What are the advantages of slope in SVC dynamic characteristics?	L1
6	What are the advantages of thyristor switched capacitors?	L1
7	What are the functions of STATCOM in the improvement of power system performance area?	L1
8	What are the conventional methods used for compensation in power systems?	L1
9	What is a stand-alone series compensation?.	L1
10	List merits of Hybrid compensator.	L1

Part-B

	Answer All the following questions. (5X10M=50Marks)	
11	Why electrical transmission systems are interconnected? Explain. [10]	L2
	OR	
12	What are voltages sourced converters? Why voltage sourced converters are preferred for FACTS application. [10]	L2
13	Explain the Switching converter type VAR Generator. [10]	L2
	OR	
14	Write short note on [3+3+4] 1) Thermal capability 2) Dielectric capability 3) Stability limit	L2
15	With a neat circuit diagram and necessary waveforms, discuss the operation of a Thyristor Controlled Reactor (TCR). Also represent their V-I operating area. [10]	L3
	OR	

16	Emphasize features of thyristor-controlled reactor. [10]	L3
17	Explain the voltage stability enhancement and power oscillation damping with series capacitive compensation. [10]	L2
	OR	
18	Describe the transfer function and dynamic performance of SVC and STATCOM with necessary diagrams. [10]	L4
19	Explain the implementation of the UPFC by back-to-back voltage sourced converters. [10]	L2
	OR	
20	Write a comparison between IPFC and UPFC. [10]	L3