QP Code: RD22MTECH175 | Reg. No | | | | | | | | | | | AY 22 & AY 21

GIET UNIVERSITY, GUNUPUR – 765022

M. Tech. (Third Semester) Examinations, December – 2023

MPEPE3012– Facts and Custom Power Devices

(Power Electronics)

Time: 3 hrs | Maximum: 70 Marks

(The figures in the right hand margin indicate marks.)

PART – A **(2 x 10 = 20 Marks)**

Q1. Answer ALL questions	CO#	Blooms Level
a. Define how power flows & types of powers in ac systems.	CO1	K2
b. How is the reactive power controlled, using FACTS devices?	CO1	K3
c. Why there is need of hybrid VAR generators?	CO4	K2
d. Define FACTS controllers as per IEEE definition.	CO2	K1
e. What are the objectives of UPFC in power transmission?	CO2	K2
f. What are the factors which limit loading capability?	CO3	K2
g. State objective of series compensation.	CO1	K3
h. What are the differences between voltage source converters and current source converters?	CO3	K1
i. Why transient free switching of TSC is needed? How it is achieved?	CO3	K4
j. What is PWM converter & what are its advantages?	CO4	K2

PART – B **(10 x 5 = 50 Marks)**

Answer ***ANY FIVE*** questions	Marks	CO#	Blooms Level
2. a. Explain about the importance of transmission interconnections.	5	CO1	K2
b. Explain about the basic types of FACTS controllers with neat diagrams.	5	CO1	K3
3.a. Briefly explain the loading capability of a transmission line	5	CO2	K3
b. Write short notes on: Sub synchronous harmonics; TCPARS.	5	CO2	K2
4. a. What is the importance of Generalized and multi-functional FACTS controllers?	5	CO3	K4
b. What are the capacities of UPFC to control real and reactive power flow transmission system?	5	CO3	K2
5.a. Discuss the block diagram of IPFC control scheme.	5	CO4	K2
b. How an UPFC scheme can be implemented using two back to back VSC. Explain with a neat sketch?	5	CO4	K4
6. a. State and explain the various IEEE standards of power quality.	5	CO4	K5
b. Explain the various power quality problems in distribution systems.	5	CO4	K4
7.a. Describe how TCSC helps in power oscillation damping.	5	CO3	K3
b. Explain power oscillation damping for series capacitive compensation.	5	CO3	K5
8. a. Explain any two by Variable Impedance type FACTS devices.	5	CO2	K2
b. How can the transient stability of a power system be improved with the of shunt compensation?	5	CO1	K3

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