QPC: RJ19MTECH063 AR 19 Reg. No | | | | | | | | | | |

GIET UNIVERSITY, GUNUPUR – 765022

M. Tech (Third Semester – Regular) Examinations, December – 2020

MPEPE 3012 – FACTS AND CUSTOM POWER DEVICES

(Power Electronics)

Time: 2 hrs Maximum: 50 Marks

The figures in the right hand margin indicate marks.

PART – A (2 x 10 = 20 Marks)

Q.1. Answer ***ALL*** questions

a. Recall the need for variable series compensation.
b. Identify the required inputs that correspond to three basic modes of SVC control.
c. What do you understand by TCR?
d. Mention the two basic approaches for controllable series compensation.
e. Define TCSC.
f. Pointout the importance of unified power flow controller.
g. Appraise the term reactive power.
h. List out the causes for harmonics and how does it affects the electrical system?
i. How voltage sag can be mitigated?
j. Recall any two IEEE standards on power quality.

PART – B (6 x 5 = 30 Marks)

Answer ***ANY FIVE*** questions Marks

2. Indicate and show the transmission line compensated by controllable reactive power source at receiving end. (6)
3. Explain the operation of TSC with a series reactor. (6)
4. Elucidate SSSC with its schematic and equivalent circuit. (6)
5. With a neat sketch, illustrate the output voltage waveform of the delay angle controlled thyristor tap changer supplying a purely capacitive load. (6)
6. Enumerate GTO controlled series capacitor showing the principle of turn off delay angle control. (6)
7. Recall the equations intended for reactive power control in a three phase system with aid of Clarke's transformation. (6)
8. Draw the equivalent circuit of UPFC and assess in detail. (6)
9. Explain IPFC involving 'n' converters with a neat sketch. (6)

--- End of Paper ---