

Roll No. :

Total No. of Questions : 9]

[Total No. of Pages : 3

3354

B.Tech. (EE) 6th Semester (Supplementary)
Examination, July-2021
(G Scheme) (Elective-IV)

POWER QUALITY AND FACTS

Paper-PEC-EE-08-G

Time : Three Hours]

[Maximum Marks : 75

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note :- Attempt *five* questions in all, selecting *one* question from each Section. Question No. 1 is compulsory.

1. (a) Discuss the factors which limit the loading capability of a power system.
- (b) Why electrical transmission systems are interconnected ?

- (c) Define Voltage Sag.
- (d) Define CBEMA Curves.
- (e) Explain the basic control scheme of TCR.
- (f) Explain Fault Current Limiter. $2\frac{1}{2} \times 6 = 15$

Section-A

- 2. (a) Explain analysis of uncompensated AC transmission line.
 - (b) Compare Series and Shunt Compensation. $7\frac{1}{2}, 7\frac{1}{2}$
 - 3. (a) Discuss the benefits from FACTS Controllers.
 - (b) Explain the working and characteristics of Thyristor Controlled Series Capacitor. $7\frac{1}{2}, 7\frac{1}{2}$
- Section-B**
- 4. (a) Discuss the basic concept of voltage source converter with circuit diagram.
 - (b) Explain the operation of STATCOM with the aid of block diagram. $7\frac{1}{2}, 7\frac{1}{2}$

3354_250

(2)

RD-3491

- 5. (a) Discuss the working principle of Unified Power Flow Controller.
- (b) Discuss the working principle of Static Synchronous Series Compensator. $7\frac{1}{2}, 7\frac{1}{2}$

Section-C

15 each

- 6. Discuss voltage regulation of transmission mid-point voltage using a STATCOM.
- 7. Explain in detail power quality problems in DC Distribution System.

Section-D

15 each

- 8. Discuss in detail the synchronous reference frame extraction of reference currents in DSTATCOM.
- 9. Explain working principle of Unified Power Quality Conditioner (UPQC). Discuss various control strategies.

3354_250

(3)

RD-3491