

4/12/2024 ELECTRICAL SEM-VIII C SCHEME DLOC-V PQFACTS QP CODE: 10066468

( 3 Hours )

[Total Marks : 80]

Please check whether you have got the right question paper.

- N.B.:**
1. Question No.1 is compulsory
  2. Attempt any three Questions out of remaining five Questions.
  3. Assume suitable data if necessary and justify the same.

1. Answer all questions
  - a) Explain objectives of series compensation **05**
  - b) Explain the Load compensation, state its objectives. **05**
  - c) List all type of shunt compensators. **05**
  - d) Explain the merits and demerits of transmission interconnections. **05**
2.
  - a) Explain switching converter type series compensation (SSSC). **10**
  - b) Explain the Thyristor controlled phase angle regulator (TCPAR). **10**
3.
  - a) Explain various basic FACTS controllers on the basis of their connection with needful diagram. Give One example in each categories. **10**
  - b) Explain power factor correction in single phase system. **10**
4.
  - a) Enlist common power quality issues from the consumer point of view. **10**
  - b) How harmonics affect the rotating machine, transformers and cables. **10**
5.
  - a) Explain voltage and current characteristics of TCR and FCTCR. **10**
  - b) Explain different harmonic mitigation technique. **10**
6.
  - a) Explain various parameters which limit the loading capabilities of transmission line. **10**
  - b) Calculate the total harmonic distortion of a voltage waveform with following harmonic frequency makeup: Fundamental  $V_1=114V$ ,  $V_3=4V$ ,  $V_5=2V$ ,  $V_7=1.5V$ ,  $V_9=1V$  **10**