

**PARUL UNIVERSITY**  
**FACULTY OF ENGINEERING & TECHNOLOGY**  
**M.Tech. Winter 2019 - 20 Examination**

**Semester: 3****Subject Code: 203207231****Subject Name: FACTS and Custom Power Devices****Date: 26/11/2019****Time: 10.30 am To 1.00 pm****Total Marks: 60**

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**Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

- Q.1** A) Describe Power flow control Constraints of maximum transmission line loading using power equations. (05)  
B) Describe operation and control of TCR. (05)  
C) Explain Thyristor switched series capacitor (TSSC) with using diagram. (05)
- Q.2 Answer the following questions. (Attempt any three) (Each five mark) (15)**  
A) Explain reactive power compensation using series compensation principles.  
B) With using diagram explain thyristors controlled series capacitor (TCSC).  
C) Explain Voltage Sag.  
D) Give comparison between SVC and STATCOM.
- Q.3** A) Describe harmonic phase rotation and phase angle relationship. (07)  
B) With using diagram explain operation and control of SVC. (08)
- OR**
- B) Describe Independent real and reactive power flow control. (08)
- Q.4** A) Explain power flow control of UPFC dynamic performance. (07)
- OR**
- A) Explain basic control structure of Unified Power Flow Controller (UPFC). (07)  
B) List out different passive and active harmonics mitigation filter and explain all passive harmonics filter in short. (08)