

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

# GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VIII • EXAMINATION – WINTER • 2014

**Subject Code: 180907**

**Date: 25-11-2014**

**Subject Name: Advanced Power Electronics-II**

**Time: 02:30 pm - 05:00 pm**

**Total Marks: 70**

**Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Discuss advantages of FACTS devices. **07**  
(b) Explain the series compensation for power system network. **07**
- Q.2** (a) Compare AC and HVDC power transmission systems. **07**  
(b) Explain the working principle of Thyristorised Controlled Reactor (TCR) with neat sketch. **07**
- OR**
- (b) Compare different types of SVCs. **07**
- Q.3** (a) State the types of HVDC systems and explain each in brief. **07**  
(b) Discuss the limitations of HVDC transmission system. **07**
- OR**
- Q.3** (a) Discuss Operation and Principles of Three Phase Six Pulse Converter using SCRs. **07**  
(b) Explain Inverter Extinction Angle Control (EAG). **07**
- Q.4** (a) Explain the shunt compensation used for power system network. How it can be useful to improve the performance of system? **07**  
(b) Discuss the working of FC-TCR with neat diagrams. **07**
- OR**
- Q.4** (a) Explain working principle of Unified Power Flow Controller (UPFC). **07**  
(b) Discuss the working of combined TSC-TCR compensator circuit. **07**
- Q.5** (a) State the types of FACTS devices and explain each in brief. **07**  
(b) Discuss Thyristor Switched Capacitor (TSC) with diagram. **07**
- OR**
- Q.5** (a) What is Regulating Transformer ? Explain with phasor diagram how active and reactive power flow can be controlled through a power transmission line. **07**  
(b) Discuss Operation and Principles of Three Phase twelve Pulse Converter using SCRs. **07**

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