

GUJARAT TECHNOLOGICAL UNIVERSITY
PDDC - SEMESTER-VII • EXAMINATION – SUMMER • 2015

Subject Code: X70904

Date: 18/05/2015

Subject Name: Advanced Power System-1

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) Explain Schematic diagram of HVDC Substation & Explain working of each component. **07**
- (b) What is the basic concept behind use of FACTS? State different advantages of FACTS. **07**
- Q.2** (a) Explain modeling of thyristor controlled reactor (TCR) in details with necessary expressions & usual notations. **07**
- (b) Explain load compensation & system compensation with help of phasor diagram **07**
- OR**
- (b) Explain UPFC control with neat schematic diagram **07**
- Q.3** (a) What is compensation in power system? Discuss active and passive compensation in power system in details **07**
- (b) Explain conventional methods of real power control in transmission line. **07**
- OR**
- Q.3** (a) Explain working of STATCOM with schematic diagram. **07**
- (b) Compare between the classical HVDC and HVDC-VSC system **07**
- Q.4** (a) Explain extinction angle control ? What are its limitations under symmetrical faults. **07**
- (b) Write short note on Sources and effects of harmonics in power system. **07**
- OR**
- Q.4** (a) Explain different methods of reactive power control. **07**
- (b) Explain conduction sequence in 6-pulse converter configuration used for HVDC system. **07**
- Q.5** (a) What is IGBT? Draw its symbol and discuss important features of IGBT for VSC based HVDC conversion. **07**
- (b) Sketch the current wave form of the transformer secondary line current of a 12-pulse converter. Derive expressions PIV and PPR for 12 pulse converter. **07**
- OR**
- Q.5** (a) Explain working of TCR draw wave forms of voltage and current for different values of α . **07**
- (b) Write short note on HVDC link. **07**
