

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE - SEMESTER-VII(OLD) • EXAMINATION – WINTER 2016**

**Subject Code: 170905****Date: 18/11/2016****Subject Name: Advanced Power System - I (Department Elective - I)****Time: 10:30 AM to 01:00 PM****Total Marks: 70****Instructions:**

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

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|------------|-----|--|-----------|
| <b>Q.1</b> | (a) | Explain advantages of FACTS.   | <b>07</b> |
|            | (b) | Discuss Series compensation of reactive power for transmission line.                         | <b>07</b> |
| <b>Q.2</b> | (a) | Discuss Shunt compensation of reactive power for transmission line.                          | <b>07</b> |
|            | (b) | Explain on load tap changing control (OLTC) of transformer.                                  | <b>07</b> |
| <b>OR</b>  |     |  |           |
|            | (b) | Discuss Automatic Generation Control(AGC).   | <b>07</b> |
| <b>Q.3</b> | (a) | Discuss Fixed Capacitor Thyristor Controlled Reactor(FC-TCR) with operating characteristics. | <b>07</b> |
|            | (b) | Discuss Thyristor-Switched Capacitor(TSC) with operating characteristics.                    | <b>07</b> |
| <b>OR</b>  |     |  |           |
| <b>Q.3</b> | (a) | Discuss Thyristor-Switched Capacitor-Thyristor-Controlled Reactor(TSC-TCR)                   | <b>07</b> |
|            | (b) | Compare different SVCs.  | <b>07</b> |
| <b>Q.4</b> | (a) | Explain HVDC system with Equipments required for it.   | <b>07</b> |
|            | (b) | Discuss Limitations of HVDC Transmission Lines.  | <b>07</b> |
| <b>OR</b>  |     |  |           |
| <b>Q.4</b> | (a) | Explain Inverter Extinction Angle Control (EAG).   | <b>07</b> |
|            | (b) | Discuss Operation and Analysis Of VSC converters.  | <b>07</b> |
| <b>Q.5</b> | (a) | Compare HVDC link with EHV AC link.  | <b>07</b> |
|            | (b) | Analyze Three phase six pulse converter using SCRs for HVDC.                                 | <b>07</b> |
| <b>OR</b>  |     |  |           |
| <b>Q.5</b> | (a) | Discuss Harmonics in HVDC system.  | <b>07</b> |
|            | (b) | Analyze twelve pulse converter system for HVDC.  | <b>07</b> |

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