No. of Printed Pages : 2

BIEEE-008

00300

B.Tech. ELECTRICAL ENGINEERING (BTELVI)

Term-End Examination

June, 2013

BIEEE-008 : FLEXIBLE AC TRANSMISSION SYSTEM

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt **any** seven questions. Each question carry **equal** marks. Assume suitable missing data, if any.*

---

1. What is series capacitor compensation ? What are the relative advantages and disadvantages ? Analytically compare between the series and shunt compensation of Transmission line. **10**

2. (a) What do you mean by FACTS ? What are usual FACTS devices ? **5**

(b) What is the difference between FACTS device with and without energy storage ? **5**

3. Why SVC is treated as a shunt controlled FACTS device ? Briefly describe the operation of a SVC. **10**

4. Describe the power flow model of STATCOM. Why does it act as a shunt controller in FACTS Technology ? **10**

5. What is UPFC ? Why it is superior to other conventional FACTS devices ? How would you model UPFC for a power flow program ? **10**

6. A delta connected TCR (Thyristor Controlled Reactor) is connected to a 400 kV Transmission line through a 10:1 step-down-transformer. The max reactive power at rated voltage is 100 MVAR. What would be the value of the fundamental component of line-current of TCR at 400 kV side for conduction angle of 120° ? What is the peak current in the thyristor ? **10**

7. Explain the basic principle of P and Q power flow control mechanism. **10**

8. Write short note on **any two** of the following : **2x5=10**
   (a) TCVR
   (b) TCPAR
   (c) Thyristor controlled braking resistor.

9. Briefly describe the interline power flow controller. **10**

10. Discuss the advantages of the dynamic compensation at the middle of the Transmission line. **10**
