

Roll No. ....

**23287**

**M. Tech. 2nd Semester  
(Electrical Power Systems)  
Examination – May, 2016**

**FACTS CONTROLLERS**

**Paper : MTEPS-202**

*Time : Three Hours ]*

*[ Maximum Marks : 100*

*Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.*

*Note : Attempt five questions in all, selecting one question from each Section. Question No. 1 is compulsory.*

*All questions carry equal marks.*

1. (a) Explain single phase full wave bridge converter operation.  $4 \times 5 = 20$
- (b) Discuss over current protection of a converter.
- (c) Discuss about power flow control by phase angle regulator.

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(d) Explain improvement of transient stability with phase angle regulator.

(b) Explain power oscillation damping. 10

### SECTION – A

2. Discuss the flow of power in A. C. system and explain basic types of FACTS controllers in details. 20

3. (a) Explain current rating based characteristic of high power devices. 10

(b) Discuss the applications of facts devices. 10

### SECTION – B

4. (a) Explain single-phase full wave bridge current source converter. 10

(b) Explain 3-phase full wave bridge converter. 10

5. (a) Explain transformer connection for 24 pulse converter. 10

(b) Distinguish C.S.C. and V.S.C. 10

### SECTION – C

6. (a) Discuss about the improvement of transient stability. 10

### SECTION – D

7. Describe TSR and FC-TCR with a suitable Ckt diagram. 20

8. Explain the slope transfer function and dynamic performance of STATCOM. 20

9. Write a short note on :

(i) GSC

(ii) GTO