Exam.Code:1019
Sub. Code: 35272

2076

M.E. Electrical Engineering (Power System)

Third Semester

EE (PS) -8302 (b): Flexible AC Transmission Systems Controllers

Time allowed: 3 Hours **Max. Marks: 50**

NOTE: Attempt any five questions.

x-x-x

Q1	Derive the governing equations for real and reactive power flow between two interconnected buses of a power system.	(10 Marks)
Q2	Introduce FACTS technology. Compare the conventional methods of reactive power control with FACTS controllers.	(10 Marks)
Q3	Explain the operating principle, characteristics, and applications of STATCOM.	(10 Marks)
Q4	Give suitable examples of variable impedance type Shunt FACTS controllers. Compare their operating characteristics and justify with appropriate reasons, which type is more suitable for modern power system applications.	(10 Marks)
Q5	Discuss the classification of series and shunt FACTS controllers. Describe the operating principle of TCSC and evaluate their role in improving power system performance.	(10 Marks)
Q6	Explain the principle of operation, control capabilities and characteristics of Unified Power Flow Controller.	(10 Marks)
Q7	Describe transient stability and power oscillations in interconnected power systems. Evaluate the factors influencing transient stability and suggest suitable measures for its improvement.	(10 Marks)
Q8	Explain the concepts of voltage and phase angle regulations in power systems. Describe the operating principle of a thyristor-based FACTS controller used for voltage control with a suitable diagram, and discuss how it enhances the performance of the power system.	(10 Marks)

x-x-x