**R09**

**Code No: C0705**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**
**M.Tech I - Semester Examinations, March/April-2011**
**REACTIVE POWER COMPENSATION AND MANAGEMENT**
**(ELECTRICAL POWER SYSTEMS)**

**Time: 3hours** **Max. Marks: 60**

**Answer any five questions**
**All questions carry equal marks**

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1. Explain how a Load Compensator works as a voltage regulator. [12]
2. How power factor correction and voltage regulation can be achieved by means of compensation in 1-phase systems. [12]
3. Explain briefly the following
   a) Vitual-$Z_0$ ( Surge impedance compensation)
   b) Virtual-θ (Line-length compensation)
   c) Compensation by "Sectioning". [12]
4. Explain uniformly distributed fixed compensation in transmission lines and how it effects the
   i) voltage control ii) Line-charge reactive power iii) Maximum power of the line? [12]
5. Explain how shunt compensation is obtained by means of Mid-point shunt reactor or capacitor in transmission lines. [12]
6. a) Define Reactive Power Management.
   b) Explain how Reactive Power Management or Planning is obtained by means of mathematical modeling. [12]
7. Explain how a user side reactive power management is obtained by means of capacitors. [12]
8. Write short notes on:
   a) Explain the different types of Power Tariffs.
   b) Explain the load patterns in demand side management.
   c) Explain the advantages and disadvantages of Flicker compensation techniques.
   d) TCR-FC (Thyristor Controlled Reactor with Fixed Capacitor) in transient state reactive power compensation. [12]

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