Code No: G5604/R13

M. Tech. I Semester Supplementary Examinations, December-2016

REACTIVE POWER COMPENSATION & MANAGEMENT

(Common to PS, PSC&A, EPE, EPS, PE&ES and APS)

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

Answer any FIVE Questions
All Questions Carry Equal Marks

1. (a) Discuss the following objectives of load compensation:
   (i) Power factor correction
   (ii) Improvement of voltage regulation
   (iii)Load balancing.
   (b) Draw and explain reactive power characteristics of a load compensation system [6+6]

2. Prove that an unbalanced three phase load can be transformed into a balanced load without changing the real power exchange between source and load, by connecting an ideal compensating network in parallel with unbalanced load. State the assumptions made. [6+6]

3. (a) Discuss the advantages and disadvantages of different compensating equipment for transmission systems.
   (b) Explain series capacitor compensation in transmission lines with and without shunt reactors. [6+6]
4. Explain how shunt compensation is obtained by means of Mid-point shunt reactor or capacitor in transmission lines. [12]

5. (a) What is electromagnetic interference? Explain its significance in power systems.
   (b) Give a detailed algorithm for optimum dispatch of reactive power with the help of a flow chart. [6+6]

6. What is the purpose of using capacitors on user side for reactive power management? What are the deciding factors for the selection of capacitors? [12]

7. (a) Discuss about different types of capacitor available in the market and explain their characteristics and limitations.
   (b) What are the different types of system losses? Explain different loss reduction methods used in reactive power demand side management. [6+6]

8. (a) Explain the remedial measures for voltage flicker.
   (b) Explain the filter requirements for reactive power management in electric traction systems and furnaces. [6+6]

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