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Question Paper Code : 51515

B.E/B. Tech. DEGREE EXAMINATION, MAY/JUNE 2016

Seventh Semester

Electrical and Electronics Engineering

EE 2401/10133 EE 701/EE 71 – POWER SYSTEM OPERATION AND CONTROL

(Regulations 2008/2010)

(Common to PTEE 2401/10133 EE 701 – Power System Operation and Control for B.E.

(Part-Time) Fifth Semester – Electrical and Electronics Engineering –

Regulations 2009/2010)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions.

PART – A (10 × 2 = 20 Marks)

1. Distinguish between load factor and diversity factor.
2. What is the importance of load forecasting ?
3. Distinguish between single area and two area system.
4. Define an Economic dispatch control.
5. What is the necessity of reactive power control ?
6. What is meant by absorption of reactive power ?
7. What is priority list method ?
8. What are the constraints in Unit Commitment problem ?
9. What is the need for computer control in Power systems ?
10. What are the functions of SCADA and EMS.

PART – B (5 × 16 = 80 marks)

11. (a) (i) Sketch and explain the load curve and load duration curves. (6)
(ii) Explain the techniques used for load forecasting. (10)
- OR**
- (b) (i) Describe with a neat block diagram the overview of power system operation and control. (10)
(ii) Explain in detail, the role of computers used in power system operation and control. (6)
12. (a) (i) Describe the basics of speed governing mechanism. (6)
(ii) Explain the load sharing between two synchronous machines in parallel. (10)
- OR**
- (b) Explain with a neat diagram, the tie line with frequency bias control of two area system. (16)
13. (a) (i) Describe the basics of reactive power control. (6)
(ii) Derive the relation between voltage, power and reactive power at a node “n” in power system. (10)
- OR**
- (b) Explain with necessary diagrams the different voltage control methods. (16)
14. (a) Describe the direct method and X iteration method for solving economic dispatch problem. (16)
- OR**
- (b) (i) What is the need for unit commitment in power system ? (8)
(ii) Describe the forward dynamic programming approach for solving unit commitment problem. (8)
15. (a) (i) Explain the concept and functioning of energy control centre. (10)
(ii) Explain with a neat block diagram, the data acquisition and control. (6)
- OR**
- (b) (i) Describe the security analysis and control of power systems. (8)
(ii) Draw and describe the state transition diagram. (8)