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Question Paper Code: 37302

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2018

Seventh Semester

Electrical and Electronics Engineering

01UEE702 - POWER SYSTEM OPERATION AND CONTROL

(Regulation 2013)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. State the difference between load curve and load duration curve.

2. State the difference between p-f and q-v control.

3. How is the real power in a power system controlled?

4. What is area control error?

5. What are the methods of voltage control?

6. Draw the transfer function model of an amplifier involved in AVR loop.

7. Differentiate Unit commitment and Economic load dispatch problem.

8. How will you calculate the full load average production cost involved in priority list method for unit commitment?

9. Define FLAPC.

10. Define state estimation.

PART - B (5 x 16 = 80 Marks)

11. (a) (i) A generating station has a maximum demand of 40 *MW* and a connected load of 75 *MW*. If the numbers of units generated in a year are 250 x10^6, Calculate the annual load factor. (8)

(ii) Discuss any two techniques for forecasting power system loads. (8)

Or

(b) Illustrate an overview of power system operation and control and explain the role of computers in effective power system operation. (16)

12. (a) Discuss in detail, the Static and dynamic response of a single area system without integral control following a step disturbance. (16)

Or

(b) Two 1000 *kW* alternators operate in parallel. The speed regulation of first alternator is 100 % to 103 % from full load to no load and that of other is 100 % to 105%. How will the two alternators share a load of 1200 *kW*. (16)

13. (a) Draw the diagram of a typical automatic voltage regulator and develop its block diagram representation. (16)

Or

(b) (i) Describe in detail, how tap changing transformers improve the voltage profile in power system operation. (8)

(ii) Draw and explain the block diagram of AVR with feedback stability compensation. (8)

14. (a) Explain the unit commitment problem. With the help of a flow chart, explain forward dynamic programming solution method of unit commitment problem. (16)

Or

(b) Explain various constraints in UC and indicate the steps involved in solving in solving UC by DP method. (16)

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15. (a) Explain the hardware components and functional aspects of SCADA system using a fundamental block diagram. (16)

Or

(b) Explain the security monitoring using state estimation with necessary diagrams. (16)

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