Code.No: RR410204 | RR | SET-1

IV B.TECH – I SEM EXAMINATIONS, NOVEMBER - 2010
POWER SYSTEM OPERATION AND CONTROL
(ELECTRICAL AND ELECTRONICS ENGINEERING)

Time: 3hours **Max.Marks:80**

Answer any FIVE questions
All questions carry equal marks

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1. a) Explain how the incremental production cost of a thermal power station can be determined.
   b) Write an algorithm for optimal operation of generating stations without line losses. [8+8]

2. a) Explain the significations of equality and inequality constraints in the economic allocation of generation among different plants in a system.
   b) Derive the condition for economic scheduling of generation in a plant. [8+8]

3. a) Explain about spinning reserve in hydro power plants.
   b) Explain about co-ordination in hydro-thermal system. [8+8]

4. With a neat block diagram explain the steady state analysis of an isolated power system under uncontrolled case. [16]

5. a) Discuss the tie-line control mechanism of power in an interconnected system.
   b) Discuss the supplementary control mechanism of power in an intra connected system. [8+8]

6. a) With a neat phasor diagrams explain the reactive power balance and its effect on system voltage.
   b) The load at the receiving end of a 3-phase, over head line is 25 MW, power factor 0.8 lagging, at a line voltage of 33 KV. A synchronous compensator is situated at the receiving end and the voltage of both ends of the line is mentioned at 23KV . Calculate the MVAr of the compensator. The line has resistance 5 ohms per phase and inductive reactance 20 ohms per phase. [7+9]

7. Obtain the dynamic response of load frequency controller with integral control action in two area load frequency control system. [16]

8. a) Explain production cost, incremental fuel cost.
   b) Explain hydro thermal scheduling problem. [8+8]

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Code.No: RR410204 | RR | SET-2

IV B.TECH – I SEM EXAMINATIONS, NOVEMBER - 2010
POWER SYSTEM OPERATION AND CONTROL
(ELECTRICAL AND ELECTRONICS ENGINEERING)

Time: 3hours **Max.Marks:80**

Answer any FIVE questions
All questions carry equal marks

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1. a) Explain about spinning reserve in hydro power plants.
   b) Explain about co-ordination in hydro-thermal system. [8+8]

2. With a neat block diagram explain the steady state analysis of an isolated power system under uncontrolled case. [16]

3. a) Discuss the tie-line control mechanism of power in an interconnected system.
   b) Discuss the supplementary control mechanism of power in an intra connected system. [8+8]

4. a) With a neat phasor diagrams explain the reactive power balance and its effect on system voltage.
   b) The load at the receiving end of a 3-phase, over head line is 25 MW, power factor 0.8 lagging, at a line voltage of 33 KV. A synchronous compensator is situated at the receiving end and the voltage of both ends of the line is mentioned at 23KV . Calculate the MVAr of the compensator. The line has resistance 5 ohms per phase and inductive reactance 20 ohms per phase. [7+9]

5. Obtain the dynamic response of load frequency controller with integral control action in two area load frequency control system. [16]

6. a) Explain production cost, incremental fuel cost.
   b) Explain hydro thermal scheduling problem. [8+8]

7. a) Explain how the incremental production cost of a thermal power station can be determined.
   b) Write an algorithm for optimal operation of generating stations without line losses. [8+8]

8. a) Explain the significations of equality and inequality constraints in the economic allocation of generation among different plants in a system.
   b) Derive the condition for economic scheduling of generation in a plant. [8+8]

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Code.No: RR410204 | RR | SET-3

IV B.TECH – I SEM EXAMINATIONS, NOVEMBER - 2010
POWER SYSTEM OPERATION AND CONTROL
(ELECTRICAL AND ELECTRONICS ENGINEERING)

Time: 3hours **Max.Marks:80**

Answer any FIVE questions
All questions carry equal marks

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1. a) Discuss the tie-line control mechanism of power in an interconnected system.
   b) Discuss the supplementary control mechanism of power in an intra connected system. [8+8]

2. a) With a neat phasor diagrams explain the reactive power balance and its effect on system voltage.
   b) The load at the receiving end of a 3-phase, over head line is 25 MW, power factor 0.8 lagging, at a line voltage of 33 KV. A synchronous compensator is situated at the receiving end and the voltage of both ends of the line is mentioned at 23KV . Calculate the MVAr of the compensator. The line has resistance 5 ohms per phase and inductive reactance 20 ohms per phase. [7+9]

3. Obtain the dynamic response of load frequency controller with integral control action in two area load frequency control system. [16]

4. a) Explain production cost, incremental fuel cost.
   b) Explain hydro thermal scheduling problem. [8+8]

5. a) Explain how the incremental production cost of a thermal power station can be determined.
   b) Write an algorithm for optimal operation of generating stations without line losses. [8+8]

6. a) Explain the significations of equality and inequality constraints in the economic allocation of generation among different plants in a system.
   b) Derive the condition for economic scheduling of generation in a plant. [8+8]

7. a) Explain about spinning reserve in hydro power plants.
   b) Explain about co-ordination in hydro-thermal system. [8+8]

8. With a neat block diagram explain the steady state analysis of an isolated power system under uncontrolled case. [16]

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Code.No: RR410204 | RR | SET-4

IV B.TECH – I SEM EXAMINATIONS, NOVEMBER - 2010
POWER SYSTEM OPERATION AND CONTROL
(ELECTRICAL AND ELECTRONICS ENGINEERING)

Time: 3hours **Max.Marks:80**

Answer any FIVE questions
All questions carry equal marks

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1. Obtain the dynamic response of load frequency controller with integral control action in two area load frequency control system. [16]

2. a) Explain production cost, incremental fuel cost.
   b) Explain hydro thermal scheduling problem. [8+8]

3. a) Explain how the incremental production cost of a thermal power station can be determined.
   b) Write an algorithm for optimal operation of generating stations without line losses. [8+8]

4. a) Explain the significations of equality and inequality constraints in the economic allocation of generation among different plants in a system.
   b) Derive the condition for economic scheduling of generation in a plant. [8+8]

5. a) Explain about spinning reserve in hydro power plants.
   b) Explain about co-ordination in hydro-thermal system. [8+8]

6. With a neat block diagram explain the steady state analysis of an isolated power system under uncontrolled case. [16]

7. a) Discuss the tie-line control mechanism of power in an interconnected system.
   b) Discuss the supplementary control mechanism of power in an intra connected system. [8+8]

8. a) With a neat phasor diagrams explain the reactive power balance and its effect on system voltage.
   b) The load at the receiving end of a 3-phase, over head line is 25 MW, power factor 0.8 lagging, at a line voltage of 33 KV. A synchronous compensator is situated at the receiving end and the voltage of both ends of the line is mentioned at 23KV . Calculate the MVAr of the compensator. The line has resistance 5 ohms per phase and inductive reactance 20 ohms per phase. [7+9]

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