

**ANURAG Engineering College**

(An Autonomous Institution)

IV B.Tech I Semester Regular/ Supplementary Examinations, Dec-2024

**POWER SYSTEM OPERATION AND CONTROL  
(ELECTRICAL AND ELECTRONICS ENGINEERING)****Time: 3 Hours****Max. Marks: 75****Section – A (Short Answer type questions)****(25 Marks)****Answer All Questions**

	<b>Course Outcome</b>	<b>B.T Level</b>	<b>Marks</b>
1. Bring out the difference between them the heat rate curve and cost curve.	CO1	L1	2M
2. Define the losses formulae coefficients?	CO1	L1	3M
3. How are the problems of scheduling Hydro-thermal power plants classified?	CO2	L1	2M
4. With neat figure explain the classification of hydro power plant.	CO2	L1	3M
5. With neat diagram demonstrate the working of AC excitation system.	CO3	L1	2M
6. Draw the block diagram of an isolated power system and explain the modelling of each block.	CO3	L1	3M
7. What is control area?	CO4	L1	2M
8. Discuss in detail the importance of load frequency control.	CO4	L2	3M
9. List the specifications of load compensation.	CO5	L1	2M
10. Distinguish shunt and series compensations.	CO5	L2	3M

**Section B (Essay Questions)****Answer all questions, each question carries equal marks.****(5 X 10M = 50M)**

11. A) Explain the optimal generation schedule among various generation systems when transmission losses are neglected in a thermal system.	CO1	L2	10M
<b>OR</b>			
B) Obtain the transmission line loss formula for a system consisting of n generating plants supplying several loads interconnected through transmission networks.	CO1	L3	10M
12. A) Derive solution for short term hydro-thermal scheduling using kirchmayer's method.	CO2	L3	10M
<b>OR</b>			
B) Describe clearly the mathematical formulation of optimal scheduling of hydrothermal system with a typical example. write the advantages of hydrothermal system.	CO2	L2	10M
13. A) Explain the working and modelling of turbine speed governing system.	CO3	L2	10M
<b>OR</b>			
B) Two turbo alternators rated for 150 MW and 250 MW have governor drop characteristics of 8% from no load to full load. They are connected in parallel to share a load of 300 MW. Determine the load shared by each machine assuming free governor action.	CO3	L3	10M

14. A) Give typical block diagram for a two-area system interconnected by tie line and explain each block. CO4 L2 10M
- OR**
- B) Explain the proportional plus integral control for load frequency control of single area system. CO4 L2 10M
15. A) What are the different types of compensating equipment used for transmission systems. Explain all in detail CO5 L3 10M
- OR**
- B) What are the advantages and disadvantages of different types of compensating equipment for transmission systems? CO5 L2 10M