

DRONACHARYA GROUP OF INSTITUTIONS, GREATER NOIDA

COURSE: B.TECH. (VII SEM)

QUESTIONS & ANSWERS

SUBJECT NAME: PSOC

SUBJECT CODE: EEE 031

BRANCH: EEE

1. What is load curve?

Ans: Load curve is the curve drawn between the variations of load on the power station with reference to time.

2. Define economic dispatch problem?

Ans: The objective of economic dispatch problem is to minimize the operating cost of active power generation.

3. Define incremental cost?

Ans: The rate of change of fuel cost with active power generation is called incremental cost.

4. Define hydrothermal scheduling problem?

Ans: The objective is to minimize the thermal generation cost with the constraints of water availability.

5. Define unit commitment?

Ans: Commitment of minimum generator to meet the required demand.

6. Define spinning reserve?

Ans: It is the term describes the total amount of generation availability from all units synchronized on the system.

7. What is meant by scheduled reserve?

Ans: These include quick start diesel turbine units as well as most hydro units and pumped storage hydro units that can be brought on line, synchronized and brought up to full capacity quickly.

8. What are the thermal unit constraints?

Ans: Minimum up time, Minimum down time, Crew constraints

9. Define min. up time?

Ans: Once the unit is running, it should not be turned off immediately.

10. Define min. down time?

Ans: Once the unit is decommitted, there is a minimum time before it can be recommitted.

11. Define crew constraints?

Ans: If a plant consists of two or more units, they cannot both be turned on at the same time since there are not enough crew members to attend both units while starting up.

12. What are the two approaches to treat a thermal unit to operating temperature?

Ans: The first allows the unit boiler to cool down and then heat back up to operating temperature in time for a scheduled turn on. The second requires that sufficient energy be input to the boiler to just maintain operating temperature.

13. What are the techniques for the solution of the unit commitment problem?

Priority list method

Dynamic programming

Lagrange relation

14. Define long range hydro scheduling problem?

Ans: The problem involves the long range forecasting of water availability and the scheduling of reservoir water releases. For an interval of time that depends on the reservoir capacities.

15. What are the optimization techniques for long range hydro scheduling problem?

Ans: Dynamic programming, Composite hydraulic simulation methods, Statistical production cost.

16. Define short range hydro scheduling problem?

Ans: It involves the hour by hour scheduling of all generators on a system to achieve min. Production cost for the given time period.

17. Define system black out?

Ans: If any event occurs on a system that leaves it operating with limits violated, the event may be followed by a series of further actions that switch other equipment out of service. If the process of cascading failures continues, the entire system of it may completely collapse. This is referred as system black out.

18. What is meant by cascading outages?

Ans: If one of the remaining lines is now too heavily loaded, it may open due to relay action, thereby causing even more load on the remaining lines. This type of process is often termed as cascading outage.

19. What are the functions of control center?

Ans: System monitoring

Contingency analysis

Security constrained optimal power flow.

20. What is the function of system monitoring?

Ans: System monitoring provides up to date information about the power system.

21. Define SCADA system?

Ans: It stands for supervisory control and data acquisition system It allows a few operators to monitor the generation and high voltage transmission systems and to take action to correct overloads.

22. What are the states of power system?

Ans: Normal state

Alert mode

Contingency mode

Emergency mode

23. Define state estimation?

Ans: State estimation is the process of assigning a value to an unknown system state variable based on measurements from that system according to some criteria.

24. Define must run constraint?

Ans: Some units are given a must run status during certain times of the year for reason of voltage support on the transmission network.

25. What is the function of security constraints optimal power flow?

In this function, contingency analysis is combined with an optimal power flow which seeks to make changes to the optimal dispatch of generation. As well as other adjustments, so that when a security analysis is run, no contingency result in violations.