**Assignment TEE-404**

1. Explain the Hydroelectric power plant with the help of complete layout and list down with proper explanations of all the components inside the power plant.
2. Explain the Thermoelectric power plant with the help of complete layout and list down with proper explanations of all the components inside the power plant.
3. Explain the Nuclear power plant with the help of complete layout and list down with proper explanations of all the components inside the power plant.
4. Explain the Solar power plant with the help of complete layout
    - Types of Solar PV system with proper explanation.
    - list down all the components inside the power plant.
5. List down all types of solar cell technologies with proper explanation. Do a comparative analysis of all the technologies in tabular format.
6. Explain the Wind power plant with the help of complete layout and list down with proper explanations of all the components inside the power plant.
7. Explain the Generation, transmission, and distribution section with the help of complete power flow diagram.
8. Explain sag and span. List down the factors that affect the sag with explanation.
9. Explain the working principal of the transformers. List down all types of transformer with their construction features, ratings, and applications.
10. List down types of materials used for overhead power lines. Draw a proper comparative analysis of all the materials in tabular form in terms of length of lines, operating voltage/power rating, alloying materials used, and types of insulators used.
11. List down all types of insulators used for overhead transmission lines with proper explanation such as materials used, operating voltage, and types of supporting tower.
12. Explain the IV and PV characteristics of the solar cells. Explain how the irradiance and temperature affect the performance of the solar cells.
13. Explain the different parameters associated to solar cells such as efficiency, form factor, open circuit voltage, maximum point voltage, maximum point current, maximum point power, and short circuit current.
14. Differentiate between the on-grid and off-grid solar PV systems.
    - Explain with complete layout
    - Explain with different components
15. List down all the power plants with the help of layout and do a exhaustive comparative analysis based on renewable/ non-renewable source, conversion

efficiency, source fuel used, power output, applications, and places they are situated.

16. List down the features of good insulators for overhead power lines.
17. Explain the High voltage DC transmission (HVDC) and explain the types of HVDC links with layout.
18. Do a comparative analysis of the HVAC and HVDC transmission.
19. Explain different types of losses in transmission power lines
20. Explain the different types of losses in solar PV cells.
21. Differentiate between Monocrystalline, Polycrystalline, and thin film solar cell technologies.

**Note:**

- **Kindly explain every questions with proper circuit diagram and complete layout.**
- **Explain each and every components with applications. Describe each and every components with proper ratings.**