

**B TECH**  
**(SEM VII) THEORY EXAMINATION 2017-18**  
**POWER STATION PRACTICE**

Time: 3 Hours

Total Marks: 100

Notes: Attempt all Sections. Assume any missing data.

**SECTION A****1. Attempt all questions in brief.****2 x 10 = 20**

- a. Define the different types of energy sources and efficiency in their use.
- b. What are the major electrical equipments in power stations?
- c. Write a note on selection of site for a thermal station.
- d. Explain the turbo-alternators.
- e. Explain the role of hydro-electric stations in power industry.
- f. Define the power station structure, layout and control of hydro-electric stations.
- g. Explain the mechanism of energy release for nuclear power stations.
- h. Write a note on selection of site for a diesel station.
- i. Explain the power crisis.
- j. Explain the future energy demand.

**SECTION B****2. Attempt any three of the following:****10 x 3 = 30**

- a. Explain in detail an economics of generation and choice of size and number of generator units.
- b. Briefly describe the main parts and the working of a steam power station with suitable diagram.
- c. Explain the fuels, fuel handling and combustion equipment of thermal stations in detail.
- d. Explain the general arrangement and operation of a hydroelectric plant.
- e. What are the characteristics of a water turbine? What is run-off? How the hydel plants are classified?

**SECTION C****3. Attempt any one part of the following:****10 x 1 = 10**

- a) Explain the main parts of a reactor and their functions of nuclear power stations. Define coolant cycles. What is a reactor control?
- b) Explain the nuclear reactor classification in detail.

**4. Attempt any one part of the following:****10 x 1 = 10**

- a) Describe the main parts and working of diesel electric stations.
- b) Explain the diesel plant efficiency and heat balance.

**5. Attempt any one part of the following:****10 x 1 = 10**

- a) Explain the methods to improve thermal efficiency of gas turbine plant in detail.
- b) Describe the open cycle and closed cycle gas turbine plants. What are the fuels for gas turbine plants?

**6. Attempt any one part of the following:****10 x 1 = 10**

- a) What are the Characteristics of steam and hydro-plants? Explain in detail.
- b) Discuss an Economic load scheduling of thermal plants neglecting and considering transmission Losses.

**7. Attempt any one part of the following:****10 x 1 = 10**

- a) Explain the concepts & principals of MHD generation in detail.
- b) Discuss the Ocean Thermal Energy in detail.