

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.