

BTECH
(SEM-IV) THEORY EXAMINATION 2017-18
POWER PLANT ENGINEERING

Time: 3 Hours

Total Marks: 70

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

- 1. Attempt all questions in brief. 2 x 7 = 14**
- a) Explain the precipitation, run-off, evaporation and hydrograph of hydro-electric station.
 - b) Explain the flow duration curve and mass curve of hydro-electric station.
 - c) Explain the selection of site for a thermal station.
 - d) Explain the fuel handling for a thermal station.
 - e) Explain the nuclear shell model and mass energy equivalence for a nuclear power station.
 - f) Explain the radio-activity and radio-active change for a nuclear power station.
 - g) Define Economic load sharing.

SECTION B

- 2. Attempt any three of the following: 7 x 3 = 21**
- a) Explain with suitable figures classification of hydro-electric plants.
 - b) Explain the main parts and working of thermal station with schematic layout.
 - c) Explain the nuclear materials and feasibility of a nuclear power station.
 - d) Explain in detail the MHD power generation.
 - e) Explain the power factor tariffs, maximum demand tariffs, block rate tariffs and two part tariffs.

SECTION C

- 3. Attempt any one part of the following: 7 x 1 = 7**
- a) Discuss the general arrangements and operation of a hydro-electric plant.
 - b) Explain the governing of turbines, draft tube, cavitation and hydro-electric generator.
- 4. Attempt any one part of the following: 7 x 1 = 7**
- a) Explain in detail about fuels in thermal stations. Define combustion and combustion equipment.
 - b) Explain ash disposal and dust collection. Define draught systems. Write a note on feed water in thermal stations.

5. **Attempt any *one* part of the following:** **7 x 1 = 7**
- a) Discuss the nuclear reactions. Explain the main parts of a reactor and their functions of nuclear power station.
 - b) Explain with suitable diagrams boiling water reactor and pressurized water reactor.
6. **Attempt any *one* part of the following:** **7 x 1 = 7**
- a) Explain the solar power generation in detail.
 - b) Explain the wind power generation in detail.
7. **Attempt any *one* part of the following:** **7 x 1 = 7**
- a) Explain the real and reactive power exchange among interconnected systems.
 - b) Explain the performance and operating characteristics of power plants.