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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.