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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 x10 = 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.