

J-21-0157

B. Tech. EXAMINATION, 2021

Semester VII (CBCS)

POWER PLANT ENGINEERING

ME-703

Time : 2 Hours

Maximum Marks : 60

The candidates shall limit their answers precisely within 20 pages only (A4 size sheets/assignment sheets), no extra sheet allowed. The candidates should write only on one side of the page and the back side of the page should remain blank. Only blue ball pen is admissible.

Note : Attempt *Four* questions in all, selecting *one* question from any of the Sections A, B, C and D.
Q. No. 9 is compulsory.

Section A

1. Explain basic thermodynamic cycles used in power plant. 15
2. Explain the construction and working of hydroelectric power plant with a layout. 15

Section B

3. (a) Discuss the various steps involved in coal handling system. **7.5**
(b) Explain commonly used ash handling system. **7.5**
4. Explain with a neat sketch the combustion chamber of a gas turbine plant. What are dilution holes ? How is flame stabilization secured by a swirler and a bluff body ? **15**

Section C

5. Explain nuclear power plants in India. What are various components of nuclear power plants ? Discuss in detail the Breeder reactor. **15**
6. Write a short note on cost estimation in power plant. **15**

Section D

7. Explain with a neat sketch the operation of a solar thermal power plant. Also discuss about the advantages and disadvantages of solar cell. **15**
8. (a) Explain the different types of geothermal resources. **7.5**

- (b) What is the difference between thermoelectric power generation and thermionic power generation ? **7.5**

(Compulsory Question)

9. (i) Why is the selection of site of a power plant so important ?
(ii) What is hydrograph ?
(iii) List the factors to be considered while selecting the site for a hydroelectric plant.
(iv) Explain the effect of regeneration in a gas turbine plant.
(v) What are the principles of nuclear energy ?
(vi) What is Investor's profit ?
(vii) What are the applications of gas turbine plant ?
(viii) What is the difference between renewable and non-renewable energy resources ?
(ix) Mention the concept of solar thermal central receiver system.
(x) What is the significance of load curves ?

1.5×10=15