

Dec-23-0554

ME-703 (Power Plant Engineering)

B.Tech. 7th (CBCS)

Time : 3 Hours

Max. Marks : 60

The candidates shall limit their answers precisely within the answer book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt five questions in all. Selecting one question each from section A, B, C & D and all subparts of section E.

SECTION - A

1. Explain Hydro-Electric Power Plant in detail with plotting of various curves for estimating stream flow. (10)
2. (a) What are the energy resources and explain the ways of their availability? (5)
- (b) Explain performance and operating characteristics of power plants. (5)

SECTION - B

3. (a) Explain the working of modern-Thermal Power Plants with flow of sheets, also, describe the super critical pressure steam station. (5)
- (b) Explain how 'reheating' improves the thermal efficiency of a simple open cycle gas turbine plant. (5)
4. (a) Give the layout of modern steam power plant. Also explain the salient feature of the same. (5)
- (b) Name the various methods of ash handling. Describe the pneumatic system of ash handling. Why it is essential to quench the ash before handling? (5)

SECTION - C

5. Explain the construction and working of BWR. Compare the working of PWR with the BWR. (10)
6. (a) What do you mean by Desuperheaters and write the name of various method of calculation? (5)
- (b) How waste is disposed off in a nuclear power station? What are the main difficulties in handling radioactive waste? (5)

SECTION - D

7. (a) What is total energy? Discuss the different types of tidal plants with neat diagrams. (5)
- (b) What is the principle of operation of OTEC plants? (5)
8. Describe in brief the following method of energy generation:
 - (a) Thermionic power generation
 - (b) Magneto hydro dynamics (M.H.D.)
 - (c) Fuel cells. (10)

SECTION - E (Compulsory)

9. Answer all the following:
 - (a) What is the importance of electric power plants?
 - (b) Why is a surge tank important in a hydro-plant?
 - (c) What are the disadvantages of gas turbine plant?
 - (d) What are the fixed costs of power plants?

[P.T.O.]

- (e) What is superheater? How much boiler efficiency improves by superheater?
- (f) List the cost of elements of a thermal power plant.
- (g) What is a moderator? Name common moderators.
- (h) What is the necessity of dust collection?
- (i) How wind power can be converted into electric power?
- (j) Differentiate between one region and two region reactors. (10×2=20)