

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(EE) (Sem.-4)  
**POWER PLANT ENGINEERING**

Subject Code : BTEE-406

M.Code : 57110

Date of Examination : 12-07-22

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTIONS TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

**SECTION-A**

1. Answer briefly :

- (a) Define Dalton's law of partial pressure.
- (b) Write a short note on the efficiencies of steam turbines.
- (c) What do you mean by Binary Vapour Cycle?
- (d) What are feed water heaters?
- (e) Discuss the importance of Hydrograph.
- (f) What is the function of surge tank?
- (g) Define Radioactive decay.
- (h) What is a four stroke engine?
- (i) What is a combined cycle plant?
- (j) Define efficiency for a steam turbine.

## SECTION-B

2. Briefly discuss the functions of the following equipments in a steam station:
  - (a) Condenser
  - (b) Cooling Tower
  - (c) Feed water heater
  - (d) Evaporator
3. A hydro electric station is designed to operate at a mean head of 210 m and fed by a reservoir having a catchment area of 1000 km<sup>2</sup> with an annual rainfall of 120 cm of which 75% is available for power generation. The expected load factor is 75%. Allowing a head loss of 6 m and assuming efficiency of turbine and generator to be 0.9 and 0.95, calculate suitable MW rating of the station. Comment on the type of turbine to be used.
4. Find the power produced by fissioning 4 grams of U235 per day.
5. Explain briefly the combined operation of different power plants.
6. Draw the layout of a diesel power plant. Explain any four major components used in it.

## SECTION-C

7. Explain briefly:
  - (a) Pollution from thermal and nuclear plants.
  - (b) Role of electrostatic precipitator in a steam power plant.
8. What considerations have to be kept in view in siting nuclear plants? How nuclearreactors are being classified? Explain.
9. Draw the layout of a gas turbine plant. Also, discuss the various performance terms associated with it.

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**