Roll No. ☐☐☐☐☐☐☐☐☐☐☐☐☐   Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(EE) PT   (Sem.–4)
# POWER PLANT ENGINEERING
Subject Code : BTEE-406
Paper ID : [72449]

Time : 3 Hrs.   Max. Marks : 60

INSTRUCTION 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 has to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.**

SECTION-A

1. **Write briefly :**

   a. What is the purpose of air intake system in a diesel engine power plant?

   b. What is the function of economizer?

   c. What are the methods used for handling of coal?

   d. What are the main units in a gas turbine power plant?

   e. What is pulverization?

   f. What is the function of a surge tank in a hydro-electric power plant?

   g. Draw the p-V and T-s diagram of Rankin cycle.

   h. What is mass defect?

   i. What is flow duration curve?

   j. What is knocking'?

SECTION-B

2. Draw schematic arrangement of closed cycle gas turbine plant. Also explain the function of each element of gas turbine plant.

3. Explain the working of Babcock Wilcox boiler with neat diagram. Clearly mention the function of each part of boiler.

4. How to select the location for (a) steam power plants (b) nuclear power plants?

5. Explain the working of two-stroke diesel engine.

6. What are the advantages of combined working of thermal power plant and hydro plant'? Discuss the need for coordination of these plants.

SECTION-C

7. Explain the working of CANDU reactor with suitable diagram. Also discuss the radioactive pollution of environment by nuclear plants.

8. Briefly explain four methods of ash handling with suitable sketches.

9. The mean monthly discharge for 12 months at a particular site of river is given below :

Month	Discharge (in millions of m³/month)	Month	Discharge (in millions of m³/month)
January	1000	July	2500
February	800	August	3000
March	600	September	2400
April	500	October	2000
May	200	November	1500
June	1500	December	1500

Draw the hydrograph, flow duration curve and mass duration curve. Determine the average inflow and the power that can be developed at an effective head of 90 m. Determine the capacity of the storage reservoir based on above one year data neglecting the losses due to seepage, evaporation etc. Assume overall generation efficiency to be 80%.