

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B.Tech. Summer 2018 - 19 Examination

Semester:5
Subject Code:03109330
Subject Name:Power Plant Engineering

Date:21/05/2019
Time:10:30am to 01:00pm
Total Marks: 60

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Objective Type Questions**(15)**

1. What is Full Form of FBC? _____
2. Gas turbine works on _____ cycle.
3. State the objective of a condenser in Steam Power Plant
4. State the functions of control rods in Nuclear Power Plant
5. List out gas turbine fuels.
6. Define Load factor.
7. Define connected load.
8. Define Demand Factor
9. Define Diversity Factor
10. Define Plant Capacity Factor
11. In thermal power plants, the deaerator is used mainly to
 - (a) Remove air from condenser. (b) Increase feed water temperature.
 - (c) Reduce steam pressure (d) remove dissolved gases from feed water
12. A power plant, which uses a gas turbine followed by steam turbine for power generation, is called:
 - (a) Topping cycle (b) Bottoming cycle (c) Brayton cycle (d) Combined cycle
13. There is no steam drum in
 - (a) La Mont boiler (b) Loffler boiler (c) Benson boiler (d) Velox boiler
14. Cooling tower in a steam power station is a device for
 - (a) Condensing the steam into water
 - (b) Cooling the exhaust gases coming out of the boiler
 - (c) Reducing the temperature of superheated steam
 - (d) Reducing the temperature of cooling water used in condenser.
15. Which one of the following statements is correct? In CANDU type nuclear reactor
 - (a) Natural uranium is used as fuel and water as moderator
 - (b) Natural uranium is used as fuel and heavy water as moderator
 - (c) Enriched uranium is used as fuel and water as moderator
 - (d) Enriched uranium is used as fuel and heavy water as moderator

Q.2 Answer the following questions. (Attempt any three)**(15)**

- A) Draw a neat layout of thermal power plant
- B) Write short note on different impurities found in feed water.
- C) Types of Cooling Towers.
- D) Compare the Thermal power plant and Nuclear power plant

Q.3 A) Explain the working of Electrostatic precipitator with neat sketch.**(07)**

- B). With usual notations derive an expression of estimation of height of chimney and condition of maximum discharge. **(08)**

OR

- B) Explain working of Bowl pulverizing mill with neat sketch. **(08)**

Q.4 A) Explain with neat sketch construction and working of CANDU type reactor**(07)****OR**

- A) A gas turbine operates on Brayton cycle. The temperature range is 1000 K and 290 K. Find pressure ratio for maximum power output. Also determine thermal efficiency, work ratio and power output, Take $C_p = 1.005 \text{ kJ/kg K}$ and $\gamma = 1.4$ for compression and expansion process. **(07)**

- B) Explain with neat sketch construction and working of Lamont Boiler **(08)**