Seat No.: _____                                    Enrolment No._____

# GUJARAT TECHNOLOGICAL UNIVERSITY
## BE - SEMESTER–V • EXAMINATION – SUMMER • 2014

**Subject Code: 151904**                                    **Date: 17-06-2014**

**Subject Name: Power Plant Engineering**

**Time: 10.30 am - 01.00 pm**                              **Total Marks: 70**

**Instructions:**
1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

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|---|---|---|---|
| **Q.1** | **(a)** | Explain with neat sketch, construction and working of La Mont Boiler. | 07 |
| | **(b)** | Draw a steam power plant and discuss its advantages. | 07 |
| **Q.2** | **(a)** | State general lay of modern steam power plant label major component and state function of each component. | 07 |
| | **(b)** | Calculate the cost of generation per kWhr for a power station having following data:<br>Installed capacity of plant =200MW; Capital cost=Rs400; crores Rate of interest and depreciation =12% Annual cost of fuel , salaries and taxation=Rs 5 crores; Load factor=50%. Also estimate the saving in cost per KWhr if annual factor is raised to 60%. | 07 |

**OR**

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|---|---|---|---|
| | **(b)** | Explain the constructional difference between Low pressure and High pressure boiler | 07 |
| **Q.3** | **(a)** | What are the reasons of corrosion in a boiler and how it is control? | 07 |
| | **(b)** | Derive an expression for maximum discharge through a chimney. | 07 |

**OR**

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| **Q.3** | **(a)** | Draw and explain diesel engine power plant. | 07 |
| | **(b)** | Explain the working of Electrostatic precipitator with neat sketch. | 07 |
| **Q.4** | **(a)** | Explain with neat sketch construction and working of CANDU type reactor. | 07 |
| | **(b)** | Discuss bad effects of acid rains. How acid rains are controlled? | 07 |

**OR**

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| **Q.4** | **(a)** | Write short note on sodium zeolite ion exchange process. | 07 |
| | **(b)** | Differentiate between Jet and Surface condensers. | 07 |
| **Q.5** | **(a)** | Explain seawater treatment using reverse osmosis process. | 07 |
| | **(b)** | Give the comparison between the following:<br>(i) Nuclear power plant and thermal power plant<br>(ii) Diesel power plant and thermal power plant | 07 |

**OR**

| | | | |
|---|---|---|---|
| **Q.5** | **(a)** | What are fission fragment and fission product? Explain Fission Reaction with an example. | 07 |
| | **(b)** | With neat sketch explain Pneumatic ash handling system. List its advantages and disadvantages. | 07 |

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