

GUJARAT TECHNOLOGICAL UNIVERSITY
PDDC - SEMESTER- IV • EXAMINATION – SUMMER 2015

Subject Code: X41903**Date: 02/06/2015****Subject Name: Power Plant Engineering****Time: 10.30am-01.00pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Use of steam table is permitted.

- Q.1** (a) Draw general layout of modern steam power plant, label major component and state the function of each component. **07**
(b) Explain with neat sketch La mount boiler **07**

- Q.2** (a) Explain with neat sketch Fluidized bed combustion **07**
(b) State the advantage of pre heating of the air. Explain Plate type pre heater with neat sketch **07**

OR

- (b) Derive an expression for draught produced in mm of water by chimney with usual notation. **07**

- Q.3** (a) Explain the following system used in coal transfer : **07**
(1) Belt conveyor
(2) Screw conveyor
(3) Bucket conveyor
(b) Explain “over feed” and “under feed” principle of coal firing. **07**

OR

- Q.3** (a) Describe the sodium zeolite process with neat sketch. **07**
(b) State the various impurities in feed water. Enlist various methods for removing impurities from feed water. **07**

- Q.4** (a) Explain working of CANDU type reactor with neat sketch. **07**
(b) Draw a neat diagram of nuclear reactor and explain the function of different components. **07**

OR

- Q.4** (a) Explain with neat sketch arrangement of a diesel power plant and function of each system **07**
(b) What are the different methods of cooling diesel engine ? explain any one with neat sketch. **07**

- Q.5** (a) Discuss the various effect of pollutants on human being. **07**
(b) Define the following : **07**
(1) Load factor
(2) Plant capacity factor
(3) Plant use factor
(4) Demand factor

OR

- Q.5** (a) The following observations were taken during a test on surface condenser **07**
:
(1) Vacuum in condenser=71.5 cm of Hg
(2) Barometric reading = 76.5 cm of Hg
(3) Temperature of condensate=32°C
(4) Hot well temperature=30°C
Calculate:
(1) Partial pressure of air in bar
(2) Mass of air in kg/m³ of condenser volume
(3) Vacuum efficiency
- (b) Classify steam condensers and explain any one with neat sketch. **07**
