

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**
