

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
PDDC SEM-IV Examination-Nov-2011

Subject code: X41903

Subject Name: Power Plant Engineering

Date: 25/11/2011

Time: 2.30 pm -5.00 pm

Total marks: 70

Instructions:

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

- Q.1** (a) Discuss the unique features and advantages of high pressure boilers. **07**
(b) Discuss the factors affecting the site selection of thermal power plant. **07**
- Q.2** (a) What is condenser? Classify the condenser and compare the jet type and surface type condenser. **07**
(b) A surface condenser is design to handle 10000 kg of steam per hour. The steam enters at 0.08 bar and 0.9 dryness and the condensate leaves at the corresponding saturation temperature. The pressure is constant throughout the condenser. Estimate the cooling water flow rate per hour; if the cooling water temperature rise is limited to 10°C. **07**
- OR**
- (b) The following data were obtained from the test of a surface condenser: **07**
Condenser vacuum = 711 mm of Hg; Hot well temperature of circulated water = 32°C; Inlet temperature of circulated water = 12°C; Outlet temperature of circulated water = 28°C; Barometer reading = 760 mm oh Hg. Compute the vacuum efficiency and condenser efficiency.
- Q.3** (a) Explain the coal handling system of modern thermal power plant. **09**
(b) Write note on Hydraulic ash handling system. **05**
- OR**
- Q.3** (a) What is pulverized fuel? Explain pulverized fuel firing system. **09**
(b) Write note on Velox boiler. **05**
- Q.4** (a) Why feed water treatment is necessary? Explain lime soda process. **07**
(b) What is the significance of draught in boiler? Explain artificial draught system used in thermal power plant. **07**
- OR**
- Q.4** (a) Explain internal and external water treatment. **07**
(b) State different types of cooling tower used in power plant. Explain any one of them in detail. **07**
- Q.5** (a) Write note on Diesel power plant. **07**
(b) Write note on nuclear reactor. **07**
- OR**
- Q.5** (a) Discuss the operating and performance characteristics of power plant. **07**
(b) How the pollution by thermal power plant can be control? **07**
