Seat No.: _____

Ganpat University

B.Tech. Mechanical Semester VI, Regular Examination, May/June, 2012

ME604 Power Plant Engineering

Show all work clearly and in order.
Attempt all questions.
Figure to the right indicates full marks.

Marks: 70 Time: 3 H

Section I

Q. 1 [12]

Attempt any one

(a) Draw the schematic of a modern pulverized coal fueled power unit. Depict clearly the air, flue gas, steam and water paths in it.

(b) Explain modern Rankine cycle based power plant. Describe shortly the tool in locating opportunities for system improvement in such a power plant.

Q. 2 [11]

Attempt any one

(a) What parameters need to be measured for Indirect Method Testing of boiler performance? Find the Efficiency of Coal fired boiler by Direct Method for the data below:

Quantity of steam generated:	8 TPH
Steam pressure/ temperature:	10 kg/sq. cm (g)/180 deg. C
Enthalpy of steam (dry & Saturated) At 10 kg/sq. cm (g) pressure:	665 kCal/kg
Feed water temperature:	85 deg. C
Enthalpy of feed water:	85 kCal/kg
Quantity of coal consumed:	1.6 TPH
GCV of coal:	4000 kCal/kg

(b) List the functions of air preheater, economiser, superheater? Write a short note on blowdown systems.

Q. 3 [12]

Which are the functions of a modern thermal power plant condenser? Draw various condenser shell arrangements.

Section II

Q. 4 [12]

Attempt any one

(a) Explain whether ash and dust handling is more difficult than coal handling in steam power plant.

(b) Write a short note on cooling water systems encountered in power plants.

Q. 5 [11]

Attempt any one

(a) On which parameters electrostatic precipitator's size depend? Explain them in brief.

(b) Explain which parameters decides the capacity of electrostatic precipitator?

Q. 6 [12]

Describe the current scenario of nuclear power in India. With neat sketches explain pressurized water and boiling water reactors.

End of Paper