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Name:.....

Reg.No:.....



**EIGHTH SEMESTER B-TECH ENGINEERING DEGREE EXAMINATION, MAY 2012**

**AI 04 805 F – POWER PLANT INSTRUMENTATION AND CONTROL**

Time: 3 hours

Answer all questions

**Part A**

- I. a) Briefly explain the types of Boilers.
- b) What is a turbine? Explain.
- c) Explain about current and voltage measurement.
- d) Write a note on Flue Gas Analyser.
- e) What are interlocks in boiler operation? Explain.
- f) Briefly explain Drum Level Control.
- g) Write a note on Shell Monitoring and Control.
- h) What is DCS? Explain its advantages.

(8 x 5 marks = 40 marks)

**Part B**

- II. a) Explain in detail about the following methods of power generation:
  - (i) Hydro Power Generation.
  - (ii) Solar Power Generation.
  - (iii) Wind Power Generation.

**OR**

- b) (i) With neat sketch explain the operation of a Variable Speed Pump.
- (ii) With block diagram explain the thermal power generation.

- III. a) (i) Explain about frequency and power factor measurement.
- (ii) Explain the measurement of following non electrical parameters : Flow of Feed water and steam with correction factor for temperature.

**OR**

- b) (i) Explain smoke density measurement and dust monitor.
- (ii) Briefly explain Pollution monitoring instruments.

- IV. a) Explain in detail about Combustion Control and air/fuel ration control in Boilers.

**OR**

- b) (i) Write a note on Main stem and reheat stem temperature control.
- (ii) Explain the applications of distributed control system in power plants.

- V. a) Discuss in detail about PLC and SCADA.

**OR**

- b) Discuss in detail about Nuclear power generation and control station.

(4 x 15 marks = 60 marks)

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