

Reg. No. :

--	--	--	--	--	--	--	--	--	--

**Question Paper Code: 31567**

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2016

Elective

Electronics and Instrumentation Engineering

01UEI916 - INSTRUMENTATION FOR POWER PLANTS

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. How the sites for nuclear power plants are selected?
2. State the role of instrumentation and control in power plants.
3. What do you mean by 'swelling' and 'shrinking' in a boiler drum?
4. What are basic objectives of feed water treatment?
5. Why do we measure oxygen in flue gas?
6. Name three important measurements carried out to estimate the impurities in feed water and steam.
7. Why interlocks are important in power plant boilers?
8. Mention the application DCS in power plants.
9. Why speed control is required in a turbine?
10. Differentiate impulse and reaction turbines.

PART - B (5 x 16 = 80 Marks)

11. (a) Draw the schematic layout of modern thermal power plant and explain in detail. (16)

Or

(b) (i) Compare the salient features of hydro, nuclear and thermal power plants. (10)

(ii) Summarize the importance of control and instrumentation in power generation. (6)

12. (a) Explain the operation of smoke and dust monitor. (16)

Or

(b) Elaborate the concept of drum water level measurement in boilers with neat sketch. (16)

13. (a) Discuss the important analytical measurements carried out in flue gas with neat diagram. (16)

Or

(b) Write a technical notes on (i) chromatography (ii) pollution monitoring instruments. (16)

14. (a) Elucidate concept of the furnace draft control in boiler circuit with neat sketch. (16)

Or

(b) Draw and explain the different levels of DCS with different buses for power plant automation. (16)

15. (a) (i) Classify and explain the turbines based on the process conditions. (8)

(ii) Describe the principle parts of steam turbines. (8)

Or

(b) (i) Write a brief note on controls in lubrication system. (8)

(ii) Discuss the cooling systems operating in turbo alternator process with neat diagram. (8)