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Question Paper Code: 39516

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2021

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 is the use of dust monitor?
5. List the selection criteria for carrier gas in chromatography.
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. What are the requirements for vibration monitoring instruments?
10. Differentiate impulse and reaction turbines.

PART - B (5 x 16 = 80 Marks)

11. (a) (i) Compare the salient features of hydro, and thermal power plants. (10)
(ii) Summarize the importance of control and instrumentation in power generation. (6)

Or

- (b) Explain the classification of nuclear reactors and describe briefly about the PWR. (16)

12. (a) Explain how is a radiation detector useful for measurement in power plant? Describe the types of radiation detector with neat sketch. (16)

Or

- (b) With help of diagrams, explain the water and steam pressure measurements and water and steam temperature measurements in detail. (16)

13. (a) With neat sketch, explain the construction and working of High Pressure Liquid Chromatography (HPLC) with advantages and disadvantages. (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) Describe the application of Distributed Control System (DCS) in power plants in detail. (16)

15. (a) With neat diagram of elements in the steam turbine, explain each block in detail. (16)

Or

- (b) Explain the controls in lubrication systems with pressure / flow control, temperature control and tank level control in detail. (16)