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Reg. No.												

Question Paper Code	11815

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2023

Seventh Semester

Electronics and Instrumentation Engineering

EI8092 – THERMAL POWER PLANT INSTRUMENTATION

(Regulations 2017)

Duration: 3 Hours | Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks, K-Level, CO
1.	Distinguish between renewable and non-renewable energy sources.	*2,K2,CO1*
2.	Mention the role of Economizer in thermal power plant.	*2,K2,CO1*
3.	List the devices used for electrical measurement in power plant.	*2,K1,CO2*
4.	Define Power factor.	*2,K1,CO2*
5.	Differentiate induced and forced draught.	*2,K2,CO3*
6.	Classify the basic elements for unit pulverizer system.	*2,K1,CO3*
7.	What is the function of deaerator and mention its types.	*2,K1,CO4*
8.	Differentiate three element control with single element control.	*2,K2,CO4*
9.	Classify the types of turbine speed measurement.	*2,K2,CO5*
10.	Define Speed ration in turbine.	*2,K1,CO5*

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11.	a)	(i)	Illustrate with neat sketch the process of electric power generation using solar energy.	*7,K2,CO1*
		(ii)	Draw the Piping & Instrumentation diagram of a boiler system in the thermal power plant.	*6,K2,CO1*
			OR	
	b)		Describe the various process take place in thermal power plant with neat diagram.	*13,K2,CO1*
12.	a)		Describe in detail about coal flow measurement methods with neat diagram.	*13,K2,CO2*
			OR	

b) With a neat sketch illustrate the working of paramagnetic oxygen analyzer for flue gas measurement. *13,K2,CO2*

13. a) (i) Describe furnace draught control using feed forward plus feedback control. *9,K2,CO3*

(ii) Discuss about soot blowing. *4,K2,CO3*

OR

b) Explain the importance of air/fuel ratio control in a boiler and brief the methods of controlling the air / fuel with necessary diagram. *13,K2,CO3*

14. a) With neat block diagram, detail the function of distributed control system in power plant. *13,K2,CO4*

OR

b) Organize the steps involved in the operation of a two element feed water drum level control system with its schematic block diagram. *13,K2,CO4*

15. a) How speed of the turbine can be measured and what is the control mechanism to be used for maintaining the optimum speed of the turbine? *13,K2,CO5*

OR

b) (i) Explain shell temperature monitoring and control in turbine. *6,K2,CO5*

(ii) Discuss in detail the direct dry type cooling system in turbine control. *7,K2,CO5*

PART - C (1 × 15 = 15 Marks)

16. a) Identify the need for interlocks in boiler operation. Also mention the various processes / operation connected with interlocks in steam power plant for safety. *15,K2,CO4*

OR

b) With a neat diagram explain the burner management system. *15,K2,CO3*