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**Question Paper Code : 60521**

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2016.

Seventh Semester

Electronics and Instrumentation Engineering

EI 2021/EI 701/EI 1001 A/10133 EIE 21 — POWER PLANT INSTRUMENTATION

(Common to Instrumentation and Control Engineering)

(Regulations 2008/2010)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. State the principle of Nuclear power generation.
2. Name the three basic cycle of a thermal power plant.
3. What are the different types of orifice?
4. Define stagnation point.
5. Write the working principle of Orsat flue gas analyser.
6. State the need for measuring dissolved oxygen.
7. What is the effect of excess air in combustion?
8. List the various types of draft control in furnace of boiler.
9. Mention the parameters to be monitored in the cooling system of steam turbine.
10. Specify the sensor used for the measurement of lubricating oil temperature.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Distinguish the different methods of power generation. (8)  
(ii) Explain the different parameters required to be measured and maintained by instruments in a thermal power plant. (8)

Or

- (b) (i) Explain the importance of instrumentation in power generation. (8)  
(ii) Draw the PI diagram of cogeneration plant. (8)
12. (a) What is meant by Primary and Secondary transducers in Pressure measurement? Explain the pressure measurement of steam in Power plant.

Or

- (b) Why conventional float type drum level measurement is not suitable for Drum Level measurement in High Pressure boiler? Also explain any one method to measure boiler drum level in Thermal Power Plant.
13. (a) Explain the construction and working principle of pH meter. Also specify the precautions to be considered, while using a pH monitoring system. (16)

Or

- (b) List the various parameters to be monitored in feed water. Also explain the method of measuring Dissolved Oxygen content. (16)
14. (a) What are the two basic types de aerator? Explain any one in detail.

Or

- (b) Explain the methods of measurement of combustion air flow.
15. (a) Mention the various stages of Steam Turbine. Explain the method of Steam Pressure Control at the various stages of Steam Turbine.

Or

- (b) Discuss the need of Shell Temperature monitoring and control in steam turbine. Also explain the method of Shell Temperature measurement and control.