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**Question Paper Code : Q 2778**

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2009.

Seventh Semester

Electronics and Instrumentation Engineering

EI 1002 — POWER PLANT INSTRUMENTATION

(Common to Instrumentation and Control Engineering)

(Regulation 2004)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is the role of shielding in a nuclear reactor?
2. Classify hydro-electric plants according to the head of water.
3. Mention any two advantages of pulverised fuel in thermal station boilers.
4. What is the basic working principle of electrostatic precipitator?
5. What are the methods to control the feed water to the drum?
6. What are the methods of dust collection used in boiler units?
7. List the disadvantages of forced draught cooling towers.
8. What is meant by deaeration?
9. What is known as lubrication?
10. Name the boiler auxiliaries which are dealing with feed water equipment.

PART B — (5 × 16 = 80 marks)

11. (a) With a neat schematic diagram explain the power generation in a nuclear power plant. (16)
- Or
- (b) With a neat schematic diagram explain the steam generation in a drum boiler of a thermal power plant. (16)
12. (a) Discuss the measurements of various electrical parameters in a power generating plant. (16)
- Or
- (b) Write brief notes on Smoke and dust monitoring system. (16)
13. (a) With a neat sketch explain the different methods of feed water treatment. (16)
- Or
- (b) Briefly explain the following :
- (i) Flue gas oxygen analyser. (8)
- (ii) pH meter. (8)
14. (a) Describe how air is delivered to the furnace at the right conditions of flow and temperature, with air heater and different types of fans in the draught plant. (16)
- Or
- (b) With a neat sketch explain the principles and operation of "cross-limited" combustion control system. (16)
15. (a) With a neat sketch explain the method of speed measurement of a stream turbine using non-contact type transducer. (16)
- Or
- (b) Write short notes on :
- (i) Piping system for pressure measuring devices. (8)
- (ii) Cooling Towers. (8)