B. Tech.
(SEM. VIII) EXAMINATION. 2006-07
POWER PLANT INSTRUMENTATION

Time: 3 Hours]  [Total Marks: 100

Note: Attempt all questions.

1 Attempt any four parts: 5x4=20

(a) Discuss the utility of hydrograph and flow duration curve for the power plants.
(b) Describe with a neat diagram, the run-off river plant with pondage.
(c) Draw a typical layout of a thermal power plant and describe the function of a coal and ash handling plant.
(d) Explain the functions of on FD fan and an ID fan. What is balanced draught?
(e) With the help of a neat sketch, describe the working of a pressurized water reactor (PWR) used in a nuclear power plant.
(f) Explain moderator, reflector, control rods and coolant with reference to a nuclear reactor.

2 Attempt any four parts: 5x4=20

(a) Explain three element control (drum level)
(b) How is air/fuel ratio controlled? How does it affect combustion?

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(c) Draw the scheme for pulverizer control and explain it.
(d) Describe mainheader control for the purpose of combustion control.
(e) Discuss power plant reactor control.
(f) Draw the schematic of a pulverised coal direct firing system. Explain pulveriser control.

3 Attempt any two parts : 10x2=20
(a) Explain methods of vibration monitoring and its analysis.
(b) What are various lubricants used in turbines? Draw a schematic for lubricating oil temperature control.
(c) Write a note on importance of turbine monitoring and control in power plants.

4 Attempt any two parts : 10x2=20
(a) What are oxygen analysers? Describe their utility in power plants.
(b) Describe fuel analysis. How is it carried out?
(c) Write technical note on pollution monitoring and control with regard to power plants.

5 Attempt any two parts : 10x2=20
(a) What is load forecasting? Explain how optimal load flow is facilitated?
(b) What are various computer based supervisory controls in power plants?
(c) Mention uses of generation station computers. What are various problems faced in computerisation at various levels in power plants?

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