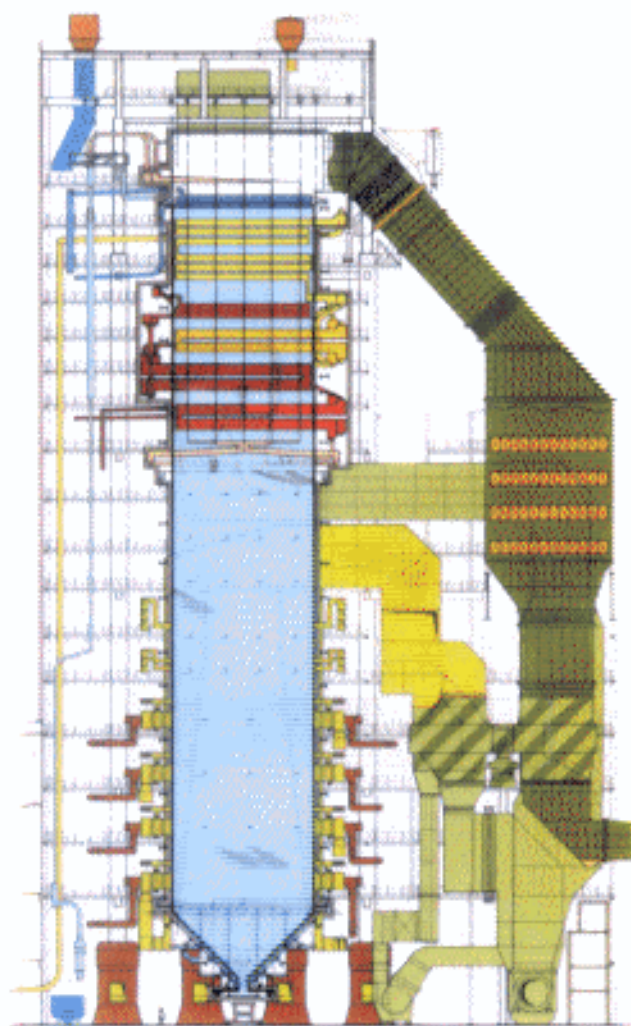


Second Edition

Boiler Operation Engineering

Questions and Answers



P Chattopadhyay

Contents

<i>Preface to the Second Edition</i>	v
<i>Preface to the First Edition</i>	vii
<i>Acknowledgements</i>	ix
<i>Nomenclature</i>	xiii
1. Boilers	1
2. High Pressure Boilers	100
3. Boiler Auxiliaries	109
4. Boiler Mountings and Accessories	126
5. Boiler Operation Inspection and Maintenance	176
6. Boiler Calculations	206
7. Draught	230
8. Primary Fuels	246
9. Principles of Combustion	268
10. The Chemistry of Combustion	288
11. Coal Pulverization	328
12. Pulverized Coal Fired Furnaces	343
13. Upgrading PC-Fired Boilers	357
14. Fuel Oil and Gas Fired Furnaces	376
15. Low NO _x Burners	393
16. Emissions Control	418
17. Dust Collection	449
18. Ash Handling System	478
19. Carryover, Scale and Sludge	488
20. Steam Contamination and Its Control	496
21. Prevention of Deposit Formation in Boiler Units	545
22. Characteristics of Steam-water Flow	560
23. Temperature Conditions and Heat Transfer	566
24. Hydrodynamics of Closed Hydraulic System	574

xii Contents

25. Deaeration and Deoxygenation	581
26. Cooling Water Treatment and Cooling Towers	589
27. Water Treatment and Demineralization	653
28. Reverse Osmosis	719
29. Scaling of Fireside of Heating Surfaces	734
30. Corrosion of Waterside Heating Surfaces	747
31. Corrosion of Fireside Heating Surfaces	771
32. Evaporators	777
33. Superheaters	787
34. Economizers and Air Heaters	816
35. Steam Condensers	832
36. Steam Turbines	856
37. Cycles for Steam Power Plants	915
38. Boiler Design	941
39. Nuclear Steam Generators	999
40. Energy from Waste	1036
41. NDE and Condition Monitoring	1050
<i>Appendix-I</i>	<i>1090</i>
<i>Appendix-II</i>	<i>1109</i>
<i>Appendix-III</i>	<i>1133</i>
<i>Appendix-IV</i>	<i>1154</i>
<i>Appendix-V</i>	<i>1160</i>
<i>Appendix-VI</i>	<i>1168</i>
<i>Appendix-VII</i>	<i>1194</i>
<i>Appendix-VIII</i>	<i>1213</i>
<i>Appendix-IX</i>	<i>1220</i>
<i>Appendix-X</i>	<i>1263</i>
<i>Appendix-XI</i>	<i>1279</i>
<i>Appendix-XII</i>	<i>1286</i>
<i>References</i>	<i>1312</i>
<i>Index</i>	<i>1319</i>