



## **STUDY OUTLINE FOR R-3 REFRIGERATION OPERATOR**

**Neighborhood and Business Development  
City Hall Room 121B, 30 Church Street  
Rochester, New York 14614-1290**

Refrigeration Operators at this level are expected to have a thorough understanding of the subjects outlined for the R-4 Refrigeration Operators License and demonstrate understanding of the following subjects:

- 1) Properties of ammonia as a refrigerant
- 2) Lubrication
- 3) Efficiency of Operation
- 4) Starting, stopping, pumping out and charging of systems
- 5) Safety devices and safety limits
- 6) Centrifugal pumps
- 7) Cooling towers and evaporative condensers
- 8) Water treatment
- 9) Refrigeration purge system
- 10) Conversions from Fahrenheit to Centigrade
- 11) Conversions from PSIG to PSIA
- 12) Conversions from "Hg Vacuum" to PSIA
- 13) Booster systems
- 14) Latent heat of fusion
- 15) Definition of absolute zero
- 16) Expansion valves
- 17) Intercooler
- 18) Manifold valves
- 19) Accumulator
- 20) Dry evaporator and flooded evaporator
- 21) Oil trap
- 22) Backpressure valve
- 23) Desuperheater
- 24) Liquid sub-cooling and suction superheat
- 25) Condenser and liquid receiver

