University of Jordan – Dept. of Chemical Engineering

0915321 ChE Thermodynamics (I)

Problem Set # (4)

Instructor: Dr. Ahmad AbuYaghi   13-12-2023

- These are suggested problems for you to work out.
- The problem numbers refer to those given at the end of Chapters in the Textbook:
    (Cengel & Boles, Thermodynamics: An Engineering Approach, 8th edition)
- The final answer(s) is/are provided.

Problem #	Final Answers
6-15	Efficiency = 45.4%
6-22	Q_H = 500 MW , Efficiency = 30%
6-39	COP = 2.22, Q_L = 4400 kJ/hour
6-55	COP = 2.64, Q_L = 1.96 kW
6-77	Efficiency = 70%, W = 9.33 kW
6-90	Compare actual COP to maximum COP
7-24	S_{gen} = 0
7-35	Δh = -807.4 kJ/kG
7-44	q = 471 kJ/kg
7-50	w = 887.1 kJ/kg
7-62	ΔS_{total} = 4.08 kJ/K
7-72	+0.38 versus -0.21 kJ/kg/k
7-80	ΔS = -0.0025 kJ/kg/s
7-85	T_2 = 576 K