REFRIGERATION AND CRYOGENICS – exercises , year III
<u>List I</u>

Example 1:
For given pressure value determinate a refrigerant temperature in liquid-vapor mixture region using a lg p – h diagram

p, bar	R 22	R 134a	R 717
0,85			
1,0			
2,0			
5,5			
10,0			

Example 2:
For given temperature value determinate a refrigerant pressure in liquid-vapor mixture region using a lg p – h diagram

t, °C	R 22	R 134a	R 717
-30			
- 12			
0			
35			
50			

Example 3:
Using lg p-h diagram fill a table cells

Refrigerator	Temperature	Pressure	Enthalpy	Entropy	Specific volume	Phase Typ
-----	t, °C	p, bar	h, kJ/kg	s, kJ/(kgK)	v, m^3/kg	-----
R 22	- 15		360			
R 22	40	6				
R 134A	0		200			
R 134A				1,75	0,06	
R 717	-10			5		
R 717	10	10				

Example 4:
Identify a refrigerating cycle for R22 refrigerant and following characteristic temperatures: -7 °C / 40°C. Determinate cycle parameters (h_{rf}, w_{in}, h_c, COP, $\dot{m}_r$) for refrigerating capacity $\dot{Q}_{rc}$ = 6 kW.

Example 5:
Identify a refrigerating cycle for R22 and R134a refrigerants and following characteristic temperatures: -5 °C / 30 °C. Determinate cycle parameters (h_{rf}, w_{in}, h_c, $\dot{m}_r$) for refrigerating capacity $\dot{Q}_{rc} = 5\ kW$ and compare COP of both cycles.

Example 6:
Identify a refrigerating cycles for R22 and R290 refrigerants and following characteristic temperatures: -10 °C / +5 °C / 35 °C. Determinate cycles parameters (h_{rf}, w_{in}, h_c, $\dot{m}_r$) for refrigerating capacity $\dot{Q}_{rc} = 10\ kW$ and compare COP of both cycles.