* A Cold Storage is to be maintained at -5°c while the surroundings are at 35°c. The heat leakage from the surroundings into the Cold Storage is estimated to be 29 KW The actual C.O.P of the refrigeration plant is one third of an ideal plant working between the same temperatures Find the power required to drive the plant [Page N.O - 105, Example : 2.4] ... //

* A vapour compression refrigerator uses methyl chloride (R-40) and operates between temperature limits of -10°c and 45°c. At entry to the compressor the refrigerant is dry saturated and after compressio it acquires a temperature of 60°c Find the C.O.P of the refrigerator The relevant properties of methyl chloride are as follows [Page N.O - 119 Example - 4.6]

* In an ammonia vapour compression system the pressure in the evapourator is 2 bar Ammonia at exit is 0.85 dry and at entry its dryness fraction is 0.19 During compression the work done per kg of ammonia is 150 KJ Calculate the C.O.P and the volume of kg vapour entering the compressor per minute if the rate of ammonia circulation is 4.5 kg/m The latent heat and specific volume at 2 bar are 1325 KJ/kg and 0.58 m^3/kg respectively [pag-113, ex:-4.1]

* An aircraft refrigeration plant has to handle a cabin load of 30 tonnes The atmosphere temperature is 17°c The atmosphere air is compressed to a pressure of 0.95ba and temperature of 30°c due to ram action This air is then further Compressed in a compresser at 4.75 bar Cooled in a heat exchanger to 67°c expanded in turbine to 1 bar pressure supplied to cabin The air leaves the cabin at a temperature of 27°c The isentropic efficiency of both compresor and turbine are 0.9 Calculate the mass of air circulated per minute and C.OP for air Cp = 1.004 kg/kg K and Cp/Cv = 1.4 [Page-74, ex: 3.2]