

UNIT-II

SNo	Question	Bloom's Taxonomy level	Co's	Po's
1	Derive an expression for C.O.P of vapor compression cycle from t-s chart when the refrigerant is dry saturated before compression.	Understand	C02	Po2
2	An air refrigeration used for food storage provides 25TR./ The temperature of air entering the compressor is 70 and the temperature at exit of cooler is 27°C. Find: 1. C.O.P. of cycle, 2. Power per tonne of refrigeration required by the compressor. The quantity of air circulated in the system is 3000 kg/h. The compression and expansion both follows the law $p v^{1.3} = \text{constant}$ and take $\gamma = 1.4$; and $c_p = 1$	Remember	C02	Po2
	kJ/kgK for air			
3	Explain the working principle of vapor compression refrigerant	Understand	C02	Po2
4	In an open air refrigeration machine, air is drawn from a cold chamber at -20°C and 1 bar and compressed to 11 bar. It is then cooled at this pressure, to the cooler temperature of 20°C and then expanded in expansion cylinder and returned to the cold room. The compression and expansion are isentropic, and follow the law $p v^{1.4} = \text{constant}$. Sketch the p-v and T-s diagrams of the cycle and for a refrigeration of 15 tonnes, find 1. theoretical C.O.P 2. Rate of circulation of the air in kg/min 3. Piston displacement per minute in the compressor and expander 4. Theoretical power per tonne of refrigeration	Remember	C02	Po2
5	Discuss the advantages of dense air refrigeration system over an open air refrigeration system.	Understand	C02	Po2