UNIT-5

S.No		Questions	BT	CO	PO
Part–A(Short Answer Questions)					
1		What is a ton of refrigeration?	1	5	1
2		What is an air standard cycle? Why are such cycles conceived?	2	5	2
3		Draw the P–V and T–S diagrams of Lenoir cycle.	2	5	1
4		Define psychometric	2	5	1
5		Compare Otto and Diesel cycle for the same maximum pressure and temperature.	2	5	1
6		Draw the P–V and T–S plots of Otto cycle.	2	5	1
7		Explain the Diesel cycle with the help of P–V and T–S diagrams.	2	5	1
8		Explain the working of Carnot cycle and derive the expression for thermal efficiency.	2	5	1
9		Compare Carnot and Rankine cycles.	2	5	1
10		Compare Carnot and Rankine cycles.	2	5	1
Part– B(Long Answer Questions)					
11	a)	Derive an expression for thermal efficiency of Otto cycle.	3	5	4,5
	b)	An engine works on a diesel cycle with an Inlet pressure and temperature of 1 bar and17 deg C. The pressure at the end of the adiabatic compression is 35 bar. The ratio of expansion, i.e. after constantpressureheatadditionis5.Calculatetheheataddition, Heat rejection and efficiency of the cycle. Assume r=1.4, Cp=1.005 kJ/kgkCv=0.717kJ/kg	5	5	4,5
12	a)	Derive an expression for thermal efficiency of Otto cycle.	3	5	4
	b)	Explain the working of Bell-Coleman cycle.	3	5	4
13	a)	Draw the variation of thermal efficiency against compression ratio of an Otto-cycle.	4	5	4
	b)	An air standard diesel cycle has a compression ratio of 17. The Pressure at the beginning of compression stroke is 1bar and the temperature is 23degC. The maximum temperature is1430degC. Determine the thermal efficiency and the mean effective pressure for this cycle. Take gamma = 1.4?	4	5	5
14	a)	With a neat sketch explain the working of simple vapour compressing refrigeration cycle and derive the expression for COP	3	5	4
	b)	Define mean effective pressure and thermal efficiency of an air standard cycle.	3	5	4
15	a)	Explain the working of Carnot cycle.	3	5	4
	b)	Explain the working of Diesel cycle.	4	5	4
16	a)	Explain the working of Rankine cycle.	3	5	5
	b)	Explain the working of Combined (Combination) cycle.	3	5	5