VIT

Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

Programme Name & Branch: B. Tech (BME, BCL, BMA, BPI)

Course Name & Code: Engineering Thermodynamics& MEE 1003

Class Number: 2253   Slot: A2+TA2+V3   Exam Duration: 90 minsMaximum Marks:50

General instruction(s):

Authorized steam tables, gas tables and thermodynamic tables permitted.

SI.No.	Section – A (5 x 10 = 50 Marks)*	Course Outcome (CO)
	Question	
1.	A tank contains 2 kg of nitrogen at 100 K with a quality of 50%. Through a volume flowmeter and a valve, 0.5 kg is now removed while the temperature remains constant. Find the final state inside the tank.	4
2.	Ammonia at 10°C and a mass of 0.1 kg is in a piston-cylinder assembly with an initial volume of 0.1 m³. The piston initially resting on the stops has a mass such that a pressure of 900 kPa will float it. Now the ammonia is slowly heated to 50°C. Find the final pressure and volume.	2
3.	Refrigerant R-32 is at -10°C with a quality of 15%. Find the pressure and specific volume.	2
4.	Evaluate changes in an isothermal process for u, h and s for a gas with an equation of state as $P(v-b) = RT$.	5
5.	Using thermodynamic data for water, estimate the freezing temperature of liquid water at a pressure of 30 MPa.	5