

Attempt all questions in brief.

Define thermodynamics.

1.

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Subject Code: RME302
Roll No: Printed Page: 1 of 1

B TECH (SEM-III) THEORY EXAMINATION 2020-21 THERMODYNAMICS

Time: 3 Hours Total Marks: 70

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A	
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b.	What is Zeroth law of thermodynamics?
c.	Explain PMM-1 and PMM-2.
d.	What is an entropy?
e.	What do you understand by high grade energy and low-grade energy?
f.	What do you understand by triple point?
g.	What is ton of refrigeration?
ъ.	SECTION B
Attem	apt any three of the following: $7 \times 3 = 21$
a.	A mass of gas is compressed in a quasi-static process from 80 kpa, 0.1 m3 to
	$0.4 \text{ Mpa}, 0.03 \text{ m}$ 3. Assuming that the pressure and volume are related by $pv^n = constant$, find the work don
	by the gas system.
b.	A domestic refrigerator is loaded with food and the door closed. During a certain period, the machin
	consumed 1 kWh of energy and the internal energy of the system drops by 5000 kJ. Find the net heat transfe
	for the system.
c.	In a certain process, a vapor, while condensing at 420°C, transfers heat to water evaporating at 250°C. Th
	resulting steam is used in a power cycle which rejects heat at 35°C. What is the fraction of the available
	energy in the heat transferred from the process vapor at 420°C that is lost due to the irreversible heat transfer
	at 250°C?
d.	Explain simple Rankine cycle with neat schematic diagram and show different processes involved in it on T
	S diagram and P-V diagram.
e.	Explain vapor compression cycle with neat schematic diagram and show different processes involved in it of
	P-V diagram and T-S diagram.
Attom	SECTION C
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 $2 \times 7 = 14$