

Scheme of Valuation/Answer Key

(Scheme of evaluation (marks in brackets) and answers of problems/key)

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

THIRD SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018

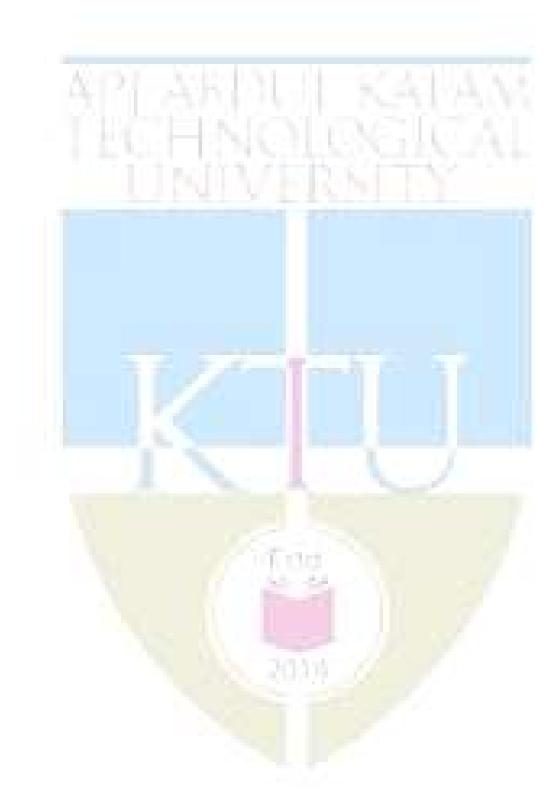
Course Code: ME205

Course Name: THERMODYNAMICS

Ma	x. M	arks: 100 Duration:	3 Hours
		PART A Answer any three full questions, each carries 10 marks.	Marks
1	a)	Microscopic – 1.5 marks, Macroscopic – 1.5 marks	(3)
	b)	Change of state – 1mark, Path – 1mark, Process – 1marks	(3)
	c)	Explanation – 4 marks	(4)
2	a)	Diagram – 1 marks, Explanation – 2 marks	(3)
	b)	Explanation	(3)
	c)	Explanation	(4)
3	a)	Explanation	(4)
	b)	Work = $+17.6$ kJ, Heat transfer = -0.8 kJ	(6)
4	a)	Derivation	(5)
	b)	Power required by the pump = - 48.9kW	(5)
		PART B	
5	a)	Answer any three full questions, each carries 10 marks. Equivalence	(5)
J	b)	Rate of heat supply from 840°C source = 47.61kW, Rate of heat rejection to the	(5)
	-,	60° C sink = 34.61 kW	(0)
6	a)	Explanation	(5)
	b)	$H_2-H_1 = 223.3$ kJ, $U_2-U_1 = 171.77$ kJ, $S_2-S_1 = 0$, $Q_{1-2} = 0$, $W_{1-2} = -171.77$ kJ	(5)
7	a)	Exergy – 1.5 marks, Anergy – 1.5 marks	(3)
	b)	Derivation	(7)
8	a)	Critical state – 2marks, Diagram – 2marks	(4)
	b)	a) $t = 123.9$ °C, Quality at 80°C $x_2 = 0.234$, $Q_{1-2} = -1890.2$ kJ/kg	(6)

PART C
Answer any four full questions, each carries 10 marks.

9 a) Proof



(4)

	b)	Expression
10	a)	Explanation
11	a)	Explanation
12	a)	Maxwells relation -6 marks, Clausius-Clapeyron – 4 marks
13	a)	Explanation
14	a)	Definition
	b)	Explanation

