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

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any three full questions, each carries10marks.

			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 – 1marks, Explanation – 2marks	(3)
	b)	Explanation	(3)
	c)	Explanation	(4)
3	a)	Explanation	(4)
	b)	Work = +17.6kJ, Heat transfer = -0.8 kJ	(6)
4	a)	Derivation	(5)
	b)	Power required by the pump = - 48.9kW	(5)

PART B

Answer any three full questions, each carries10marks.

5	a)	Equivalence	(5)
	b)	Rate of heat supply from 840ºC source = 47.61kW, Rate of heat rejection to the 60ºC sink = 34.61kW	(5)
6	a)	Explanation	(5)
	b)	H_2-H_1 = 223.3kJ, U_2-U_1 = 171.77kJ, S_2-S_1 = 0, Q_{1-2} =0, W_{1-2} = -171.77kJ	(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 = 123.9ºC, Quality at 80ºC x_2 = 0.234, Q_{1-2} = -1890.2 kJ/kg	(6)

PART C

Answer any four full questions, each carries10marks.

9 a) Proof (4)

	b)	Expression	(6)
10	a)	Explanation	(10)
11	a)	Explanation	(10)
12	a)	Maxwells relation -6 marks, Clausius-Clapeyron – 4 marks	(10)
13	a)	Explanation	(10)
14	a)	Definition	(5)
	b)	Explanation	(5)

****