APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

THIRD SEMESTER B.TECH DEGREE EXAMINATION, MAY2019

Course Code: FT205

Course Name: FUNDAMENTALS OF HEAT AND MASS TRANSFER

Max. Marks: 100 | Duration: 3 Hours

PART A

			Marks
1	a)	Schematic diagram and assumptions-sphere – (2), Temperature distribution equation – (2), Heat transfer rate equation – (1), Thermal resistance equation – (1)	(6)
	b)	Four boundary conditions – (4*1)	(4)
2	a)	Fiqure (2) derivation(3)	(5)
	b)	Data interpretation - (1), equation – (2), final answer – (2)	(5)
3	a)	Convection definition – (1), rate equation – (1) mass transfer equation(3)	(5)
	b)	Velocity boundary layer explanation – (3), figure – (2)	(5)
4	a)	Forced convection boiling – (4), figure – (3)	(7)
	b)	Dropwise condensation-explanation – (1.5), Film condensation-explanation – (1.5)	(3)

PART B

5	a)	Figure – (3), construction and parts – (3), working – (2)	(8)
	b)	Statement of law – (1), equation – (1)	(2)
6	a)	NTU method – (2), equation – (2), advantages – (1)	(5)
	b)	Data interpretation – (1), equation – (1), final answer – (3)	(5)
7	a)	Five theories – (5*2)	(10)
8	a)	Equations – (3), derivation – (4)	(7)
	b)	Definition of diffusion coefficient – (2), unit – (1)	(3)

PART C

9	a)	Choice of solvent-minimum 7 criteria – (7*1)	(7)
	b)	Three defintions – (3)	(3)
10	a)	Discussion of HETP – (3), significance – (2)	(5)
	b)	Absorption with chemical reaction – (5)	(5)
11		Neat schematic- construction-parts-functions	(10)
12	a)	V-L equilibria – graph – (3), discussion – (2)	(5)
	b)	q-line definition – (2), importance – (3)	(5)
13	a)	Differential distillation – figure – (2), discussion – (2), equations – (2)	(6)
	b)	Reflux ratio – definition – (1), equation – (1), importance – (2)	(4)
14		Mc-cabe Thiele method-assumptions Continuous rectification column-schematic Operating line equation- enriching section and stripping section Graph-equilibrium line and operating lines Procedure for calculating number of trays	(3) (1) (2) (2) (2)
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