



ANJUMAN-I-ISLAM'S
KALSEKAR TECHNICAL CAMPUS, NEW PANVEL
 School of Engineering & Technology

DEPARTMENT OF MECHANICAL ENGINEERING - CLASS TEST 2

CLASS:- T E M E 2	SEM:- V
SUBJECT:- Heat Transfer	DATE:- 26 / 10 / 2016
DURATION:- 60 min.	MARKS:- 20

	marks	CO
Q.01 Attempt any two: (08 Marks)		
a) Explain Velocity and Thermal Boundary Layer thickness	04	05
b) Explain film and Drop wise condensation.	04	03
c) Draw Boiling Curve and identify the different Boiling regimes	04	03
Q.02 Attempt any two: (12 Marks)		
a) 16.5 Kg/s of a product at 650 degree C (Cp = 3.55 KJ/Kg degree C) in a chemical plant are to be used to heat 20.5 Kg/s of the incoming fluid from 100 degree C(Cp=4.2 KJ/Kg degree C).If the overall heat transfer coefficient is 0.95 KW/m2 degree C and the installed heat transfer surface is 44 m2, calculate the fluid outlet temperatures for the counter-flow and parallel flow arrangements.	06	04
b) Air at 30 degree C and atmospheric pressure flows at a velocity of 2.5 m/s over a plate maintained at 90 degree C. The length and the width of the plate are 900 mm and 450 mm respectively. Calculate the heat transfer rate from (i) First half of the plate. li) full plate and iii) next half of the plate. The properties of air at mean bulk temperature (90+ 30)/2 =60 degree C are: Density = 1.06 Kg/m3, Viscosity = 7.211 Kg/hm, and 18.97 X 10 ⁻⁶ m2/s, Pr=0.696, K=0.02894 W/m degree C.	06	03
c) Discuss significance of Dimensionless Numbers used in heat transfer by convection.	06	03