



## SARDAR PATEL UNIVERSITY

## **B.Sc.** Industrial Chemistry

## (Semester - VI) EXAMINATION

Date: 27/6/2022

Course No: US06CICH24

(Process Control for Heat and Mass Transfer Operations)

Total Marks: 70

Time: 10.00 am to 12.00 pm

Q.1	<ul> <li>Answer the given multiple choic</li> </ul>	e questions.		[10]	
1	Volumetric expansion takes place in		_ thermometer		
	a)Resistance	c)Mercury			
	b)Thermocouple	d)Bimetallic			
2	A body which absorbs all the radiation falling on it is known as				
	a)White body	c) Steafan Body			
	b) Black body	d) None of these.			
3	Flow measuring device which works on variable area principle is				
	a)Venturimeter b) Orifice meter	c) Rotameter	d) V-Notch		
4	Orifice meter works on the principles of	•			
	a)Differential area b) Differential pressure c) None of these d) Both of these				
5.	The instrument which indicates reading in numeric value is				
	a)Digital b) Analog	c) Both a and b	d) None of these		
6	The centre to centre distance between t				
· · . :	a) Pitch ···	c) Clearance			
	b) Economy	d) Efficiency			
7 The heat will flow through the brick wall of furnace via					
·	a) Convection	<ul><li>c) Radiation</li></ul>			
	b) Conduction	d)All of the above			
8	$y_A/x_A$ is				
	a) Relative volatility b) Selectivity	c) Volatility	d) All of these		
9	Spray Dryer is used for the production of	of`	•		
	a) Dye	c) Detergent Pow	der		
	b) Bricks	d) Polymer			
10	Widely used heat exchanger in paraffin	wax plant is	heat exchanger.		
	a)Graphite	c)Finned Tube	•		
78	b)Scrapped Surface	d)All of these			
Q.2	True or False			[8]	
1	Thermocouple is used to measure temperature.				
2	High expansion metal used in bimetallic strip is Brass.				
3	Bob and Tape method is used for the measurement of level.				
4	Circular plate with a hole in it is venturimeter.				
5	Graphite heat exchangers are well suited for handling viscous fluids.				
5	The centre distance between two tubes is known as clearance.				
7	Rayleigh's equation is valid for flash di	stillation			
8	Atomizer is the integral part of Rotary	Drver			

1	Write classification of ins assistance.	tempt any 10 out of 12) truments based on requirement of manual	[20]		
2	Write the principle of mer	cury thermometer.			
3	Describe Sight Glass method.				
4	List different control actions.				
5	Write any two differences	between circular and strip chart recorder.			
6	Write classification of open channel flow measuring devices.				
7	State Fourier's Law.				
8	What is thermal conductivity?				
9	Differentiate cooler and condenser.				
10	Discusss classification of Dryers.				
11	Explain Relative volatility and state Raoult's Law.				
12	Write about types of distillation	n			
Q.4	Long Answer Questions (A	ttampt any Four	[22]		
Î		and working of Bimetallic Thermometer.	[32]		
2	Discuss working of Bellow I	Pressure Gauge and Diaphragm Pressure Gau	oe		
3	Write principle, construction, working and advantages of Venturimeter.				
4	Discuss about ON-OFF Control.				
5	Derive an equation for heat transfer through Resistance in series				
6	Explain working of Double pip				
7	Write a note on :Rectification of	xolumn — — — — — — — — — — — — — — — — — — —	•		
8	Discuss about Rotary Dryer.				
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