C	T 1 . NT
Seat No.:	Enrolment No.

## **GUJARAT TECHNOLOGICAL UNIVERSITY**

**BE - SEMESTER-V • EXAMINATION - SUMMER • 2014** 

Subj	ect C	Code: 150505 Date: 24-06-2014	
_		Same: Fundamentals of Chemical Engineering Unit Operations 30 am - 01.00 pm Total Marks: 70	
	ctions	<u>-</u>	
	1. 2. 1	Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.	
0.1			0.5
Q.1	(a) (b)	Explain the different modes of heat transfer. Also write the important laws. Describe the working of jaw crusher and roller crusher.	07 07
Q.2	(a)	Explain the construction and working of a packed column along with different types of packing used.	07
	<b>(b)</b>	With the help of a neat diagram, explain the construction and working of a 1-2 shell & tube heat exchanger.	07
		OR	
	<b>(b)</b>	Explain the working principle of a venturimeter with a neat sketch. Write the major equation.	07
Q.3	(a)	Write short note on: i) centrifugal pump and ii) NPSH	08
Q.C	(b)	Briefly explain the working of a plate and frame filter press.  OR	06
Q.3	(a)	Write short notes on: i) valves and ii) cyclone separator.	08
	<b>(b)</b>	Explain critical speed of a ball mill.	06
Q.4	(a)	<ul><li>(i) Discuss multiple effect evaporation and its importance.</li><li>(ii) Differentiate between natural and forced convection.</li></ul>	08
	<b>(b)</b>	Show the difference between Newtonian and non-Newtonian fluid along	06
	( )	with a graph.	
		OR	
<b>Q.4</b>	(a)	Define: i) Kirchoff's law, ii) black body,	08
	<b>(b)</b>	iii) thermal conductivity, iv) Bernoulli's principle.  Differentiate between dropwise and filmwise condensation.	06
Q.5	(a)	Explain the construction and working of a sieve tray tower with a diagram.	07
	<b>(b)</b>	Describe forced draft and induced draft cooling towers.  OR	07
Q.5	(a)	Explain liquid-liquid extraction process and criteria for selection of solvent.	08
٧.٠	(b)	Write in brief on: i) spray drier and ii) tray drier	06

\*\*\*\*\*