Seat No.:	Enrolment No.

## GUJARAT TECHNOLOGICAL UNIVERSITY

## B. E. - SEMESTER – VII • EXAMINATION – WINTER 2012

Subject cod		70404 Date: 27/1 Bio Process Engineering - I	2/2012
Time: 10.30 Instruction	) am		rks: 70
2. Ma	ake sui	any five questions. itable assumptions wherever necessary. to the right indicate full marks.	
Q.1	(a) (b)	Explain different kinetic models in detail. Explain different valves which are most commonly used for ON/OFF applications.	10 04
Q.2	(a) (b)	What is effect of medium and culture rheology on $K_La$ ? Enlist basic functions of a fermentor.  OR	07 07
	<b>(b)</b>	Draw a neat and labeled diagram of a bioreactor.	07
Q.3	(a) (b)	Explain different fluid rheologies Write a short note on Pressure control valves and safety valves.  OR	08 06
Q.3	(a) (b)	Explain dynamic modeling of fermentor system.  Explain different Transport phenomena in a bioprocess	08 06
Q.4	(a) (b)	Explain any four different designs of fermentation vessels What operations can be performed to achieve aseptic conditions and containment during fermentation?  OR	
Q.4	<ul><li>(a)</li><li>(b)</li></ul>	Explain different designs of agitator with a neat and labeled diagram.  Explain different valves which are most commonly used for all sterile uses.	08 06
Q.5	(a) (b)	Explain radial and axial flow impellers.  Write a short note on artificial neural network.  OR	08 06
Q.5	(a) (b)	Explain black box model. What objectives should be considered for designing fermentation control system?	08 06

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