C.U.SHAH UNIVERSITY Summer Examination-2016

Subject Name: Bioprocess Technology

	Subject	Code: 4LS04MBO2/4SC04BPT1	Branch: B.Sc. (Microbio	logy)	
	Semeste	r: 4 Date: 16/05/2016	Time: 02:30 To 05:30	Marks: 70	
	Instructio	ons:			
	(1)	Use of Programmable calculator & an	y other electronic instrument is p	rohibited.	
	(2) (3)	Instructions written on main answer b Draw neat diagrams and figures (if ne	book are strictly to be obeyed.		
	(3) (4)	Assume suitable data if needed.	cessary) at right places.		
Q-1		Attempt the following questions:			(14)
-	a)	Define the term fermentation			
	a) b)	Give two examples of mechanical for	ermenter.		
	c)	What do you mean by induced muta	ation?		
	d)	Name the microbial culture used for	r amylase production.		
	e)	Which fermentation technique can b	be used for immobilized cell?		
	f)	Write the full forms of RPM & RCH	- .		
	g)	What is the role of precursors in fer	mentation media?		
	h)	Define synchronize culture.	onton		
	1) i)	Define terbidostat	enter.		
	J) k)	Name substrates used in solid state	fermentation		
	l)	Name bacterial culture used in vitan	nin B 12 production.		
	m)	What is the role of sparger in ferme	nter?		
	n)	Which type of fermenter is used for	acetic acid production?		
Atte	mpt any i	four questions from Q-2 to Q-8			
Q-2		Describe batch, fed-batch, continuor fermentation in detail.	us and SSF modes of operation fo)r	(14)
Q-3		Discuss various methods for downst	tream processing for product reco	very.	(14)
Q-4		Attempt all questions			(14)
	a)	Discuss typical fermentation proces	s for penicillin production.		(7)
	b)	Describe various methods for cell d	isruption for intracellular product	S.	(7)





Q-5		Attempt all questions	(14)
	a)	Define hydrodynamic type of fermenter and explain deep jet fermenter in detail.	(7)
	b)	Explain strategies of microbial strain improvement and discuss role of any two mutagenic agent.	(7)
Q-6		Attempt all questions	(14)
	a)	Discuss the role of temperature, dissolved oxygen, foam and pH on monitoring and control of fermentation process.	(7)
	b)	Write a note on sterilization and maintenance of aseptic conditions for fermentation media.	(7)
Q-7		Attempt all questions	(14)
	a)	Write a note on photo bioreactor.	(5)
	b)	Write the roles of buffers and antifoaming agent in the design of fermentation media.	(5)
	c)	Describe scale up processes in fermentation industries.	(4)
Q-8		Attempt all questions	(14)
	a)	Discuss the chemostat in fermentation process.	(5)
	b)	Write a note on SCP – single cell protein.	(5)
	c)	Draw a labeled diagram of a typical fermenter.	(4)



