	Ultech
Name:	
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Invigilator's Signature :	

## CS/B.Sc (H), BT/SEM-5/IBT-504/2009-10 2009 INDUSTRIAL BIOTECHNOLOGY

Time Allotted: 3 Hours Full Marks: 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

## GROUP - A ( Multiple Choice Type Questions )

- 1. Choose the correct alternatives for any ten of the following:  $10 \times 1 = 10$ 
  - i) Single celled protein is also provides
    - a) non-essential amino acid
    - b) all protein
    - c) essential amino acid (lys, met)
    - d) no proteins.
  - ii) Bubbles are created by spurger and broken by
    - a) air

- b) impeller
- c) both of these
- d) none of these.
- iii) Penicillin production is an
  - a) anaerobic process
- b) aerobic process
- c) long process
- d) little oxygen needed.

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iv)	Vine	inegar contains acetic acid in which proportion?			
	a)	4%	b)	8% Annual Cy Countries and Conference	
	c)	12%	d)	34%.	
v)	Tetr	acycline is produced by			
	a)	S. aureus	b)	S. cremoris	
	c)	S. mutans	d)	S. aureofaciens.	
vi)	Acet	ic acid is produced by			
	a)	gluconobacter	b)	clostridium	
	c)	lactobacillus	d)	none of these.	
vii)	Disa	ndvantages of immobilize	ed en	zyme is	
	a)	stable			
	b)	can be reused again			
	c)	the products are enzyme free			
	d)	d) loss of biological activity during immobilization.			
viii)	The	plasmoptysis causes			
	a)	loss of protoplasm	b)	cell swelling	
	c)	cell shrinking	d)	all of these.	
ix)	Sub	stances those helps to f	orm f	Coam is	
	a)	antifoaming agent	b)	alkali	

x) Intracellular and extracellular product recovery includes all the same steps but intracellular product recovery requires an additional step which is

d)

a) purification

glycerine

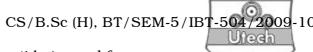
c)

b) formulation

collector substance.

c) solid liquid separation d) cell disruption.

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- xi) Psedomonas putida is used for
  - a) bioaugmentation
- b) bioremediation
- c) bioleaching
- d) biopesticides.
- xii) Size of the particle separated in ultrafiltration is
  - a) 0.001 1 mm
- b)  $0.02 2 \mu m$
- c)  $0.001 10 \,\mu\text{m}$
- d)  $0.001 0.1 \mu m$ .

## GROUP – B ( Short Answer Type Questions )

Answer any three of the following.

 $3 \times 5 = 15$ 

- 2. a) What are the disadvantages of microbial enzyme production?
  - b) How are the alginate beads formed in the process of cross-linking?  $2\frac{1}{2} + 2\frac{1}{2}$
- 3. Describe the industrial application of immobilized enzymes. 5
- 4. Write short notes on any *one* of the following:
  - a) fluidized bed bioreactor
  - b) airlift bioreactor.

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5. Write the advantages of bioleaching.

5

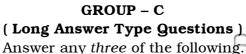
6. What are the advantages and disadvantages of single cell protein ?  $2\frac{1}{2} + 2\frac{1}{2}$ 

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- 7. Describe the methods of improvement of industrially important microbial cultures. What are the different steps of industrial fermented product recovery?  $7\frac{1}{2} + 7\frac{1}{2}$
- 8. What are the different methods of enzyme immobilization? Briefly describe each of the methods. What are the specific advantages of enzyme immobilization? 1 + 9 + 5
- 9. a) Explain composting and its mechanisms.
  - b) What is vermicomposting and its advantages?
  - c) Why are microbes the scavengers in bioremediation ( give example )?
  - d) What are the four major processes under the tertiary treatment. 5 + 3 + 2 + 5
- 10. a) Describe the process of monoclonal antibodies by *E.coli*.
  - b) How is it important for the treatment of cancer cells? 10 + 5
- 11. a) What is the source of energy in our universe?
  - b) Write a short note on energy rich crops.
  - c) Describe the production of Biomethane with proper diagram and biochemical reactions. 2 + 3 + 10

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