	(Uleah)
Name:	٨
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Inviailator's Signature :	

CS/B.Tech/BT (NEW)/SEM-4/BT-402/2013

2013 INDUSTRIAL MICROBIOLOGY & ENZYME TECHNOLOGY

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:

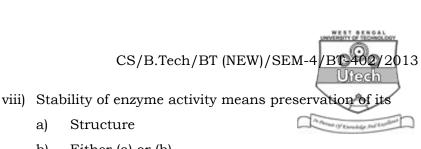
 $10 \times 1 = 10$

- i) To be suitable for industrial use, a microorganism should
 - a) be capable of growth and product formation in large scale culture
 - b) grow rapidly and produce product in a relatively short period of time
 - c) be genetically stable
 - d) all of these.
- ii) are microbially produced and can serve as gelling agents.
 - a) Amino Acids
- b) Lipids
- c) Polysaccharides
- d) Fatty Acids.

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	iii)		precursor for the bi- eynebacterium glutamic	-	hesis of Clutamate by		
		a)	Starch	b)	Cellulose		
		c)	Glucose	d)	Lactose.		
	iv)		ch of the following lucing strains of bacter		not <i>true</i> for antibiotic ed in industry?		
		a)			dified to produce much original isolate of the		
		b)	er strains contain gene				
		c)	They are essentially extensive modification needed.		wild type strains, so the strain is rarely		
		d)	None of these.				
v) Extremophillic enzymes are obtained more f					ined more from		
		a)	Archaea	b)	Yeast		
		c)	Virus	d)	Fungi.		
	Vine industries is						
		a)	Lipase	b)	Amylase		
		c)	Pectinase	d)	Fumerase.		
	vii)	vii) Commercial Streptomycin production is carried out using					
		a)	S. aureus	b)	S. pyogenes		
		c)	S. griseue	d)	Streptococcus sp.		
. 1	4		2				



- b) Either (a) or (b)
- c) Activity
- Both (a) & (b) simultaneously.
- ix) Aldolase enzymes belongs to E.C. group are
 - 2 a)

a)

3 b)

4 c)

- d) 5.
- Alginate forms gel in presence of x)
 - potassium a)
- b) sodium
- calcium
- d) zinc ion.
- Polysaccharide matrix is activated to bind amino group xi) of enzyme, by:
 - Glutaraldehyde a)
- Epichlorohydrin b)
- Cynogen bromide c)
- Phosphoric acid. d)
- Biopolishing of textile is done with
 - cellulase a)
- b) lipase
- pectinase c)
- xylanase. d)

GROUP - B

(Short Answer Type Questions)

Answer any three of the following.

 $3 \times 5 = 15$

- What is xanthan? How is it produced by fermentation? 2.
- 3. What are idiolites? Give example. Name producer organism for production of idiolite.
- 4. What are the factors that govern the stability of an enzyme?
- 5. Describe the citric acid production process.

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- 6. Write short notes on the following:
 - i) Protoplast fusion
 - ii) Enzyme electrodes and their application.

$$2\frac{1}{2} + 2\frac{1}{2}$$

GROUP - C

(Long Answer Type Questions)

Answer any *three* of the following.

 $3 \times 15 = 45$

- 7. What are β -lactum antibiotics ? Schematically illustrate Penicillin production with a flow sheet. Name the producer organism and all other relevant parameters. How is Penicillin recovered? 2 + 7 + 3 + 3
- 8. Write a detailed note on the strain development for commercial production of 'Thermolysins' with special reference to 'subtilisins'.
- 9. Define with a specific example the use of recombinant DNA technology and Genetic engineering in Strain development programs. Elucidate with a specific example.
- 10. Write down the starter culture used for production of acetic acid. How B_{12} is produced ? Name one semi-synthetic penicillin. Name at least two mutagenic agents with their mode of action. What is feedback inhibition ?

$$2 + 5 + 2 + 4 + 2$$

11. Compare merits and demerits of immobilization of enzyme by simple adsorption, ionic adsorption and covalent binding onto inert matrix. Describe shortly methods for the estimation of blood cholesterol, lipid and ethanol during fermentation. $6 + (3 \times 3)$

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