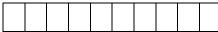
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## **GIET UNIVERSITY, GUNUPUR – 765022**

B. Tech (Fifth Semester) Examinations, December - 2022

## **BPEBT5050 - Industrial Microbiology and Enzyme Technology**

(Biotechnology)

Time: 3 hrs Maximum: 70 Marks

Answer ALL Questions									
The figures in the right hand margin indicate marks.									
PART – A: (Multiple Choice Questions) (1 x 10									
Q.1. Answer ALL questions			[	CO#]	[PO#]				
a.	Which of the following raw materials are important for the production of glutamic		d?	CO2	PO1				
	i) Glycerol	ii) Corn-steep liquor							
	iii) Tryptone	iv) Biotin							
b.	Fermentation occurs in the		,	CO1	PO1				
	i) presence of oxygen	ii) absence of oxygen							
	iii) presence of nitrogen	iv) presence of carbon							
c.	Which of the following is used as a substrate for alcohol fermentation?			CO2	PO1				
	i) Maize	ii) Barley							
	iii) Sucrose	iv) None of the above							
d.	The applications of fermentation include			CO1	PO1				
	i) Cereal products	ii) Dairy products							
	iii) Beverage products	iv) All of above							
e.	The best medium for the production of Penicillin is		ı	CO2	PO1				
	(i) Nutrient agar	(ii) Corn steep liquor							
	(iii) Sulfite waste liquor	(iv) Whey							
f.	Pyruvate decarboxylase + acetaldehyde + CO2 = This reaction is specially observed		n	CO2	PO1				
	(i) Lactic acid fermentors	(ii) Ethanol fermentors							
	(iii) Algae	(iv) Plants							
g.	Batch fermentation is also called		ı	CO1	PO1				
	(i) Closed system	(ii) Open system							
	(iii) Fed-Batch system	(iv) Sub-merger system							
h.	Which of the following is not a desired characteristic of the organism to be used for industrial application?		1	CO2	PO1				
	i) Should produce less amount of product	ii) Should be readily available							
	iii) Should grow rapidly	iv) Should be nonpathogenic							
i.	Which of these is not a product of fermentation?			CO1	PO1				
	i) Lactate	ii) Oxygen							
	iii) Carbon dioxide	iv) Ethanol							
j.	j. The most commonly used microorganism in alchohol fermentation is			CO2	PO1				
	(i) Aspergilus niger	(ii) Bacillus subtilis							
	(iii) Sacharomyces cerevisiae	(iv) Escherichia coli							

PART – B: (Short Answer Questions)			$(2 \times 10 = 20 \text{ Marks})$				
Q.2.	Answer ALL questions		[CO#]	[PO#]			
a.	What is the raw material and which is the organism used to make beer?		CO2	PO1			
b.	What do you mean by differential and selective medium?		CO3	PO1			
c.	Name two microorganisms used in the process of penicillin production?		CO2	PO1			
d.	Why antifoam is added in the reactor during fermentation?		CO1	PO2			
e.	Name the reagents responsible for induced mutations?		CO3	PO3			
f.	What is the application of alcohol in industry?		CO2	PO2			
g.	What are the major components of an industrial media?		CO3	PO3			
h.	What are the four phases of growth in fermenter?		CO1	PO1			
	Name two techniques used in preservation of strains?		CO1	PO1			
j.	Define submerged fermentation with its advantages?		CO1	PO1			
PART – C: (Long Answer Questions)			$(10 \times 4 = 40 \text{ Marks})$				
Ansv	ver ALL questions	Marks	[CO#]	[PO#]			
3. a	. Discuss about the enzyme stabilization by genetic engineering?	5	CO4	PO1			
b	. Write notes on stock culture with its importance?	5	CO3	PO1			
(OR)							
C	. How recombinant insulin is produced in microbes? Explain with diagram?	5	CO2	PO3			
d		5	CO1	PO1			
4. a	· · · · · · · · · · · · · · · · · · ·	5	CO2	PO1			
b		5	CO1	PO1			
	(OR)	3					
0	` '	5	CO3	PO1			
C			CO3	PO1			
d	Explain about the selection of commercial media and the development for industrial production?	r 5	COS	POI			
5. a	Discuss briefly about isolation, selection and characterization of microorganisms for industrial development?	s 5	CO3	PO1			
b	. List the commercially prepared enzymes and explain the microbial production of proteases?	n 5	CO2	PO1			
(OR)							
c	. Discuss about the enzyme immobilization techniques with its advantages?	5	CO4	PO1			
d	. Describe fermenter & its parts?	5	CO1	PO1			
6. a	Explain about the microbial process for the production of citric acid with its application?	s 5	CO2	PO1			
b	. Write down industrial methods for the production of Hepatitis-B vaccine?	5	CO2	PO1			
(OR)							
C		5	CO4	PO6			
d		5	CO1	PO1			
4	End of Paper	2					