QPC: RD20BTECH353 AR 20 Reg. No

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 =10 Marks)**

Q.1. Answer ***ALL*** questions [CO#] [PO#]

a. Which of the following raw materials are important for the production of glutamic acid? 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 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 in CO2 PO1

(i) Lactic acid fermentors (ii) Ethanol fermentors

(iii) Algae (iv) Plants

g. Batch fermentation is also called 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? 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. 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 x 10 = 20 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
i. 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 x 4 = 40 Marks)**

Answer ***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. Write notes on development of inoculums for industrial production?	5	CO1	PO1
4. a. Discuss in brief about polysaccharides production?	5	CO2	PO1
b. Differentiate between submerged fermentation and solid-state fermentation?	5	CO1	PO1
(OR)			
c. Discuss about the improvement of strain through induced mutation?	5	CO3	PO1
d. Explain about the selection of commercial media and the development for industrial production?	5	CO3	PO1
5. a. Discuss briefly about isolation, selection and characterization of microorganisms for industrial development?	5	CO3	PO1
b. List the commercially prepared enzymes and explain the microbial production of proteases?	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?	5	CO2	PO1
b. Write down industrial methods for the production of Hepatitis-B vaccine?	5	CO2	PO1
(OR)			
c. Write notes on application of enzymes in industry?	5	CO4	PO6
d. Discuss about the large scale production through semi-solid fermentation?	5	CO1	PO1

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