



**SARDAR PATEL UNIVERSITY**

**6<sup>th</sup> SEMESTER - B.Sc.**

**USO6CMIC06**

**Industrial Microbial Technology.**

**Date : 23/6/2022.**

**Time : 10 A.M. to 12 P.M.**

**Day: Wednesday**

**Total marks :70**

**Q.1 Select the correct answer for each question from the options given below. 10**

- 1 Which of the following salt is commonly used for precipitation of protein ?  
 (a) Ammonium chloride. (b) Ammonium phosphate.  
 (c) Ammonium sulphate. (d) None of these.
- 2 Which of the following is a method employed for disruption of microbial cell?  
 (a) Ultrasonication. (b) Freeze-Thawing.  
 (c) Solid shear. (d) All of these.
- 3 \_\_\_\_\_ affects speed of filtration.  
 (a) Cell size. (b) Pore size.  
 (c) Turbidity of slurry. (d) All of these.
- 4 The culture used for bioassay of antibiotic should be \_\_\_\_\_ to that particular antibiotic.  
 (a) Resistant. (b) Sensitive.  
 (c) Stimulatory. (d) None of these.
- 5 Fermentation economics is aimed to reduce \_\_\_\_\_ of that product.  
 (a) Cost. (b) Demand.  
 (c) Quality. (d) Quantity.
- 6 LAL test is used to detect presence of \_\_\_\_\_ component in the fermentation product.  
 (a) Peptidoglycan. (b) Endotoxin.  
 (c) Exotoxin. (d) Enzyme.
- 7 Which Vitamin plays important role in glutamic acid fermentation?  
 (a) Thiamine. (b) Niacin.  
 (c) Biotin. (d) None of these.
- 8 Trickling generators are used for fermentative production of \_\_\_\_\_.  
 (a) Acetic acid. (b) Acetone-Butanol.  
 (c) Ethanol. (d) None of these.
- 9 Which of the following organism is used for Acetone-Butanol fermentation?  
 (a) *Cl. butylicum*. (b) *Cl. butyricum*.  
 (c) *Cl. botulinum*. (d) *Cl. acetobutylicum*.
- 10  $\alpha$ -amylases are extracellular enzymes which hydrolyzes \_\_\_\_\_ bonds.  
 (a)  $\alpha$ -1,6 glycosidic. (b)  $\alpha$ -1,4 glycosidic.  
 (c)  $\alpha$ -4,6 glycosidic. (d) None of these.

Q.2

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**A State if the given statements are true or false**

- 1 Ammonium sulphate is used as filter aid during the process of filtration.
- 2 Raw material contributes to major cost in running fermentation process.
- 3  $CO_2$  gas is a by product of beer fermentation.
- 4 Glucose peroxidase enzyme converts glucose to gluconic acid.

**B Give appropriate answers for the given blanks.**

- 1 \_\_\_\_\_ is used as filter aid during the process of filtration.
- 2 A method used to measure concentration or potency of substance by its effect on living cells or tissue is called \_\_\_\_\_.
- 3 Characteristic bitter taste of beer is due to addition of \_\_\_\_\_ during fermentation.
- 4 Acetone-Butanol fermentation has risk of contamination due to \_\_\_\_\_.

Q.3

**Answer the following short questions:-(Attempt any ten)**

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- 1 What is ultrasonication?
- 2 Why filter aids are used in filtration process for removal of bacterial cells ?
- 3 Write few criteria employed for selection of product recovery process.
- 4 Write in brief about encapsulation method of enzyme immobilization.
- 5 What is the principle of LAL TEST?
- 6 Write about various media used for sterility testing of pharmaceutical products.
- 7 Which ingredients are used for making beer by fermentation process?
- 8 How cell permeability affects yield of glutamic acid production ?
- 9 Give names of starter cultures used for cheese production?
- 10 Give uses of  $\alpha$ -amylases.
- 11 Write source of carbon and nitrogen used during glutamic acid fermentation.
- 12 Write names of organisms employed for commercial production of Vit-B<sub>12</sub>.

Q.4

**Answer the following Long questions:-(Attempt any four)**

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- 1 Write in detail physio-mechanical methods used for cell disruption.
- 2 Write role of centrifugation in downstream processing? Also discuss about Disc – Bowl centrifuge.
- 3 Discuss in detail parameters affecting fermentation economics of fermentation industry.
- 4 Write an exhaustive note on :-“Enzyme-immobilization.”
- 5 Describe in brief about various stages of fermentative production of cheese.
- 6 Discuss process of Baker’s yeast production.
- 7 Write process of fermentative production of penicillin.
- 8 Write in detail about fermentative production of Acetone-Butanol.