

[33/A-15]

Seat No.: _____

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SARDAR PATEL UNIVERSITY
B.Sc.(6th Semester) EXAMINATION 2018
Friday, April 6th, 2018
10:00 a.m. TO 1:00 p.m.
SUBJECT: MICROBIOLOGY US06CMIC06
(Industrial Microbial Technology)

TOTAL MARKS: 70

- Note: (1) All the questions are compulsory.
(2) Figures on the right indicate marks.

- Q-1 Select the correct answer for each question from the option given below [10]
- Which of the following agent is used as a filter aid during filtration process?
(A) Sand (B) Diatomaceous earth (C) Glass wool (D) All of them
 - When feed and solvent migrate in opposite direction through series of mixers and separators than such solvent extraction is known as _____.
(A) Co-current (B) Counter-current
(C) Single stage (D) Two phase aqueous system
 - Which of the following bacterial component in the finished fermentation product can be detected by LAL test?
(A) Peptidoglycan (B) Endotoxin (C) Exotoxin (D) Enzymes
 - Which of the following technique is not a method of immobilization?
(A) Encapsulation (B) Entrapment (C) Cross linking (D) Enhancement
 - In which form adjuncts are added in to the beer?
(A) Grits (B) Flakes (C) Syrup (D) All of these
 - Which of the following vitamin has important role to play in glutamic acid fermentation by *Corynebacterium glutamicum*?
(A) Methionine (B) Lysine (C) Biotin (D) Thiamine
 - Which of the following amino acid during penicillin biosynthesis is present in the D-isomeric form in LLD tripeptide?
(A) α amino adipic acid (B) Cysteine (C) Lysine (D) Valine
 - Which enzyme converts glucose to gluconic acid?
(A) Oxidase (B) Peroxidase (C) Isomerase (D) None of these
 - Which of the following medium is used for the detection of stringent aerobic bacteria as well as fungal contaminants in the fermentation products?
(A) Nutrient broth (B) Soyabean casein digest
(C) Fluid thioglycolate (D) Luria broth
 - Enzyme pullulanase can be recovered from *Klebsiella pneumoniae* by which of the following technique?
(A) Ultrasonication (B) Osmotic shock
(C) Freezing thawing (D) Detergent treatment

①

(P.T.O.)

Q-2 Give Short answers to following questions (Any ten) [20]

- [1] Write about tubular bowl centrifuge with its merits and demerits.
- [2] What is cross flow filtration? Why is it better than conventional filters?
- [3] Sketch the basic steps in the form of flowchart to recover desire product from the fermentation broth?
- [4] How "Metabolic Response" method is useful to assay fermentation products?
- [5] Enlist at least four ideal characteristics of the test organism used for bioassay.
- [6] Write the principle involved in the LAL test?
- [7] What is the significance of 'Hop addition' during beer fermentation?
- [8] Give example of starter culture used in Cheese production.
- [9] Mention different stages of baker's yeast production in the form of flowchart..
- [10] Which metal ion and precursor plays important role in cyanocobalamin production.
- [11] List four applications of amylase.
- [12] Give the name of at least two organisms involved in the fermentation of gluconic acid.

Q-3 (A) Discuss various criteria for the selection of suitable recovery process. [04]
(B) Discuss physicochemical methods for cell disruption. [06]

OR

Q-3 What do you mean by 'like dissolve like'? Explain different methods of liquid:liquid extraction in detail. [10]

Q-4 (A) Write a brief note on- Sterility testing [04]
(B) Discuss any six criteria which influence fermentation economics. [06]

OR

Q-4 Give detail account on-Methods for immobilizing enzymes. [10]

Q-5 (A) Enlist different types of beer. Discuss about mashing process and Kettle boiling. [05]
(B) Discuss biochemistry of vinegar production and explain Trickling generator method for vinegar production. [05]

OR

Q-5 Discuss in detail- Fermentative production of glutamic acid. [10]

Q-6 Write a detail note on- Fermentative production of Acetone Butanol. [10]

OR

Q-6 Discuss in detail- Fermentative production of Penicillin. [10]