

(26/A-12)

SEAT No. _____

No. of Printed Pages : 2

SARDAR PATEL UNIVERSITY
B.Sc. – 6TH Semester Examination
Microbiology - US06CMIC06
Industrial Microbial Technology

Date : 04/04/2019, Thursday

Time : 10:00 a.m to 1:00 p.m.

Total marks : 70

Q.1 Select the correct answer for each question from the option given below. 10
Attempt all.(Write answer along with correct option.)

- 1 Which of the following salt is commonly used for precipitation of protein?
(a) Ammonium chloride. (b) Ammonium sulphate.
(c) Ammonium phosphate. (d) None of these.
- 2 Which agent is used as filter aid during the process of filtration?
(a) Glass wool. (b) Sand.
(c) Diatomaceous earth. (d) CaCO₃
- 3 Which organism is used to obtain the lysate for LAL Test?
(a) *Limulus polyphemus*. (b) *Humulus lupulus*.
(c) *Humulus japonicas*. (d) None of the above.
- 4 Which bi-functional agent is commonly used in cross-linking for immobilisation?
(a) Formaldehyde. (b) Acetaldehyde.
(c) Ethylene-oxide. (d) Glutaraldehyde.
- 5 Which vitamin plays important role in glutamic acid fermentation?
(a) Thiamine. (b) Niacin.
(c) Biotin. (d) Panthothenic acid.
- 6 Inactive yeast is used as _____.
(a) Human feed. (b) Animal feed.
(c) Bio-fertilizer. (d) None of these.
- 7 Trickle generators are used for fermentative production of _____.
(a) Acetone-Butanol. (b) Vitamin B₁₂.
(c) Vinegar. (d) None of these.
- 8 Microorganisms produce _____ enzyme for gluconic acid fermentation.
(a) Glucose isomerase. (b) Glucose peroxidase.
(c) Glucose oxidase. (d) Glucose kinase.
- 9 Which of the following molecules are required for penicillin bio-synthesis?
(a) L- α -Aminoadipic acid. (b) L- valine.
(c) L- cysteine. (d) All of the above.
- 10 Which organism is used for commercial production of gluconic acid.
(a) *Pseudomonas denitrificans*. (b) *Penicillium notatum*.
(c) *Acetobacter aceti*. (d) None of these.

Q.2 Give short answers to the following questions. (Answer any ten) 20

- 1 What is precipitation ? Write its applications.
- 2 Write few criteria employed for selection of product recovery.
- 3 What is liquid-liquid extraction? Give examples of solvent used for it.
- 4 Briefly describe metabolic response assay.
- 5 Write about entrapment method of enzyme immobilisation.
- 6 Write about various media used for sterility testing.
- 7 Justify the statement "Alteration of cell- permeability is important for glutamic acid production".
- 8 Enlist principle nutritional components used to prepare fermentation medium for Baker's yeast production.
- 9 Enlist names of microorganisms used for commercial production of vinegar.
- 10 Enlist commercial applications of Gluconic acid.
- 11 Write strain improvement techniques employed to increase penicillin yield.
- 12 Write in briefly about recovery process of Acetone-butanol from fermentation medium.

Q.3 Write short note on:-

(a) Rotary Vacuum drum filters. **05**

(b) Disc bowl centrifuge. **05**

OR

Q.3 Write detailed note on physico-mechanical methods for cell disruption. 10

Q.4 Write Short note on:-

- (a) Ideal characteristics of test organisms used for bio-assay. **06**
- (b) Covalent bonding as method of immobilisation. **04**

OR

Q.4 Write in detail about few parameters affecting fermentation economics. 10

Q.5 Write in brief about various ingredients used for beer production. 10

OR

Q.5 Write Short note on:-

- (a) Role of Milk clotting enzymes in cheese production. **06**
- (b) Vinegar production by surface fermentation. **04**

Q.6 Write in detail about fermentative production of Vitamin B₁₂ by *Pseudomonas denitrificans*. 10

OR

Q.6 Write Short note on:-

- (a) Production of α -Amylase. **06**
- (b) Fermentation parameters during Acetone-Butanol process. **04**

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