

[A-100]

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Sardar Patel University

B.Sc-Semester examination-2016

B.Sc VIth Semester,

Subject – Industrial Biotechnology

Course no. US06CBIT05

Date - 06.04.2016 23.45-30 PM

Time – 3hrs

Marks-70

NOTE- Figure in the right indicates marks .

All questions are compulsory. Make necessary diagram wherever needed.

Q.1. Multiple Choice Question (MCQ). Select correct answer from given MCQ. [10marks]

- 1.a. Which of the following substrate used as carbon sources in fermentation process
(A) Molasses (B) Amonium salts
(C) Corn steep liquor (D) Yeast extract
- 1.b. Select the appropriate approaches of strain improvement technique
(A) Mutant selection (B) Recombination
(C) Genetic engineering (D) All of the above
- 1.c. Enrichment culture technique are used during
(A) Secondary screening (B) Primary screening
(C) Inoculums development (D) Downstream processing
- 1.d. Select the correct enzyme widely used for cell disruption.
(A) Cellulase (B) Lysozyme (C) β -lactamase (D) Amylase
- 1.e. A device in which the organism are cultivated and motivated to form desired product are-
(A) Agitator (B) Fermentor (C) Impellar (D) Sparger
- 1.f. Which of the following are methods of downstream processing
(A) Separation of cells (B) Purification
(C) Concentration of desired product (D) All of the above
- 1.g. Aeration in fermentor is provided by
(A) Sparger (B) Impellers (C) Baffles (D) Stirrer shaft.
- 1.h. Which of the following ingredients are used as flavouring agents in beer production
(a) Hops (b) Sunflower
(c) Mustard flower (d) All of these
- 1.i. Cheese are invariably made from
(A) Casein of milk (B) Riboflavin of milk (C) Fat of milk (D) Minerals of milk.
- 1.j. Which of the following microorganism producing heat resistant toxin which causes severe food poisoning in humans
(A) Clostridium spp. (B) Salmonella spp.
(C) Steptomyces spp (D) All of the above

P.T.O

Q.2. Short questions (2 marks each) attempt any ten

[2x10=20marks]

- [1] What is fermentation?
- [2] Write a brief note on application of fermentation.
- [3] Why screening of microbial strain is important?
- [4] Differentiate between fermentor and bioreactors.
- [5] What is significance of aeration during fermentation.
- [6] What do you mean by downstream processing?
- [7] Enlist various structural component of fermentor which controls aeration and agitation.
- [8] Give the effect of pH on fermentation.
- [9] Enlist the various effects of temperature on fermentation.
- [10] Write a brief note on importance of ethanol.
- [11] Enlist various ingredients of beer.
- [12] What is red wine?

Q3.a. Enlist and explain techniques of media sterilization in detail. [6]

Q3.b. How recombination techniques used for strain improvement ? [4]

OR

Q.3.a Explain various media ingredients for typical fermentation process. [6]

Q.3.b. Give the name of microorganisms used for production of ethanol. [4]

Q.4.a. Briefly describe the major steps of downstream processing. [6]

Q.4.b. Enlist the important components of fermentor. [4]

OR

Q.4.a . Explain the different types of centrifugation methods for downstream processing. [6]

Q.4.b Write short notes on solvent extraction. [4]

Q.5.a What is C_{crit} ? Explain. [5]

Q.5.b. Write short notes on methods of measurement of temperature for fermentation. [5]

P.T.O

OR

Q.5.a. What is KL_a ? Explain. [5]

Q.5.b. Write short notes on pH electrode. [5]

Q.6. a. Explain the production of ethanol by typical fermentation process. [5]

Q.6.b. Briefly explain the various techniques of food preservation. [5]

OR

Q.6.a. How will you produce white wine through fermentation? Explain. [5]

Q.6.b. Give the name of various microorganisms responsible for food spoilage. [5]

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