

[A-47]

SARDAR PATEL UNIVERSITY

B.Sc Examination, VIth Semester

Saturday, Date: 9-04-2016

Time 2:30 p.m. to 5:30 p.m.

Subject /Course Code US 06 CBCH 06

Subject/Course Title: Microbiology & Fermentation Technology

No. Of Printed Pages: 2

Max Marks : 70

(10 marks)

Q.1 Choose the most correct answer and write in the answer sheet.

- Harmful and beneficial bacteria of the intestine are killed on consumption of
 - Antibiotics
 - Probiotics
 - Prebiotics
 - none of the above
- Peptidoglycan layer is found _____ bacteria
 - Only in Gram negative
 - Only in Gram positive bacteria
 - In both Gram positive and Gram negative
 - In all microorganisms
- Gram negative bacteria are more susceptible to mechanical breakage because
 - They do not contain peptidoglycan
 - because their cell wall is very thin
 - They contain very small amount of peptidoglycan
 - none of the above
- When yeast cells uses glucose and produces CO_2 , NAD^+ and alcohol, the process is termed as
 - Energy production
 - Ethanol fermentation
 - Lactic acid fermentation
 - aerobic fermentation
- Off flavor such as rancidity of milk is due to
 - Activity of native lipase
 - Contamination
 - Fat content
 - Oxidation
- Which of the following parameters must be monitored and controlled in fermentation
 - Temperature & pH
 - dissolved oxygen
 - contamination
 - all of the above
- In which type of fermentation, the concentration of cells in the culture is tried to keep constant
 - Batch culture
 - Turbidostat
 - Chemostat
 - none of the above
- Antibiotics are _____ metabolites.
 - Primary
 - Secondary
 - Tertiary
 - Quarternary
- Which of the following methods is best to sterilize heat labile solutions?
 - Dry heat
 - Autoclave
 - Membrane filtration
 - none of above
- In bacterial taxonomy, a rank above kingdom level is called
 - genus
 - domain
 - taxa
 - species

Q.II Answer the following questions in short. (Any ten).

(20 marks).

1. Differentiate between ribosomes of prokaryotic and eukaryotic cells.
2. What is an average size of a prokaryotic cell?
3. List the organelles in eukaryotic cells which contain DNA.
4. What events occur in bacterial cells during lag phase of growth?
5. Ethanol, citric acid, Glutamic acid, etc. produced by fermentation are examples of primary or secondary metabolites?
6. What is enrichment culture technique?
7. After how long cultures grown on agar slopes stored in refrigerator (5°C) needs to be subcultured?
8. Name any two culture collection centers.
9. What is the importance of quality control of preserved stock cultures?
10. List various types of fermentation.
11. What is generation time of bacteria?
12. What is the site of biosynthesis of peptidoglycan?

Q.III Answer the following questions:

- Q.3 (a) Explain the composition and functions of Lipopolysaccharide layer of bacteria. (05)
(b) Differentiate between prokaryotic and eukaryotic cells. (05)
OR
- Q.3 (a) Explain the structures of Gram positive cell wall. (05)
(b) Write scientific names of any five bacteria as per the International code of Nomenclature. (05)
- Q.4 (a) Differentiate between Batch culture and Continuous culture (05)
(b) Explain the fermentation process for production of penicillin. (05)
OR
- Q.4 (a) Explain the fermentation process for production of alcohol. (05)
(b) Explain the component parts of fermentation process. (05)
- Q.5 (a) Explain any two methods of preservation of industrially important microorganisms with their preservation timings. (05)
(b) Explain the importance of uniform inoculums in batch cultures. (05)
OR
- Q.5 (a) Explain the primary and secondary screening techniques for isolation of industrially important microorganisms. (05)
(b) Explain the major criteria for selection of industrially useful microorganism. (05)
- Q.6 Explain the types and processes for production of cheese. (10)
OR
- Q.6 (a) What are probiotics? Explain their industrial importance. (05)
(b) Explain the process of wine production. (05)