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Seat No.: \_\_\_\_\_ SARDAR PATEL UNIVERSITY No. of Printed Pages : 2

[18/A-8]

B.Sc Examination, VIth Semester

Friday, Date: 06-04-2018

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

Subject /Course Code US 06 CBCH 06

Subject/Course Title: Microbiology & Fermentation Technology

Max Marks : 70

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

(10 marks)

1. Which of the following is found in both gram positive and gram negative bacterial cell wall and provides structural strength?
  - (a) Peptidoglycan
  - (b) Lipopolysaccharide
  - (c) muramic acid
  - (d) acetyl glucosamine
2. Consumption of glucose by growing yeast cells and production of CO<sub>2</sub>, NAD<sup>+</sup> and alcohol, is called
  - (a) Energy production
  - (b) Ethanol fermentation
  - (c) Lactic acid fermentation
  - (d) aerobic fermentation
3. In bacterial taxonomy, a rank above kingdom level is called
  - (a) genus
  - (b) taxa
  - (c) domain
  - (d) species
4. Cell wall in microorganisms shows
  - (a) Semi permeability
  - (b) Differential permeability
  - (c) complete permeability
  - (d) impermeability
5. Which of the following structure of bacterial cell is potential target of antibiotics?
  - (a) cell membrane
  - (b) mitochondria
  - (c) cell wall
  - (d) flagella
6. In which type of fermentation, the concentration of cells in the culture is tried to keep constant
  - (a) Batch culture
  - (b) Turbidostat
  - (c) Chemostat
  - (d) none of the above
7. Fermentation is
  - (a) Production of alcoholic beverages by microorganisms
  - (b) mass production of microbial products
  - (c) use of microbes in sewage and pollution control
  - (d) all of the above
8. In batch fermentation,
  - (a) Substrates are added to the system all at once and runs until product is harvested
  - (b) Nutrients are continuously fed into the reactor and product is siphoned off during the run
  - (c) New batches of microorganisms are screened for increased yield
  - (d) Small-scale production is used to synthesize product.
9. Applications of fermentation includes
  - (a) Cereal products
  - (b) Beverage products
  - (c) Dairy products
  - (d) all of the above
10. Which of the following methods is best to sterilize heat labile solutions?
  - (a) Dry heat
  - (b) Autoclave
  - (c) Membrane filtration
  - (d) none of above

[P.T.O.]

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

**(20 marks).**

1. Give any two examples of each of prokaryotic and eukaryotic cells.
2. Define generation time of bacteria. List factors affecting germination time.
3. What is the application of iodine in Gram's staining?
4. Differentiate between primary and secondary metabolites.
5. How are industrially important microorganisms preserved?
6. Give any two examples of microbial culture collection centers in India.
7. What is fermentation? What are different types of fermentation?
8. What are probiotics? Give examples.
9. What is biodiversity? Why is it important to study biodiversity of microorganisms?
10. Differentiate between archaeobacteria and eubacteria.
11. Give examples of products produced by fermentation of milk.
12. What is chitin?

- Q.3 (a) Compare the differences between prokaryotic and eukaryotic cells. (05)  
(b) Explain the modern classification of living organisms. (05)

OR

- Q.3 (a) Explain the biosynthesis of peptidoglycan monomers. (06)  
(b) Write any two bacterial genus and species names as per the rule of International Code of Nomenclature of Bacteria. (04)

- Q.4 (a) Differentiate between Batch culture and Continuous culture. (05)  
(b) Explain production of any one antibiotic by fermentation technology. (05)

OR

- Q.4 (a) Explain the importance of uniform inoculums in batch culture fermentations. (05)  
(b) Give examples and explain the role of fermentation technology for recombinant products and transformation processes. (05)

- Q.5 (a) Discuss primary and secondary screening for isolation of industrially important microorganisms. (05)  
(b) Explain any one technique of preservation of industrially important microorganism. (05)

OR

- Q.5 (a) Explain the advantages of lyophilization over the other methods for preservation of industrially important microorganisms. (05)  
(b) Give a brief account on culture collection. (05)

- Q.6 (a) Explain how microbial testing of milk is carried out. (05)  
(b) What are probiotics? Give examples and explain their functions. (05)

OR

- Q.6 (a) Explain the process of wine production. (05)  
(b) Write the basic operations carried out in a dairy plant and give examples of fermented dairy products. (05)