

[73/A-11]

## SARDAR PATEL UNIVERSITY

## S.Y.B.Sc EXAMINATION - SEMESTER-III

## MICROBIOLOGY – US03CMIC22 ( Microbial Physiology)

Date: 06/01/2021

Time: 02:00 PM to 04:00 PM

Day: Wednesday

Total marks: 70

N.B: Figures on the right indicate marks.

Q.1

## Multiple Choice Questions.

10

- 1 The bacteria which can use reduced inorganic compound as electron donor are known as..  
(a) Chemotrophs (b) Organotrophs  
(c) Phototrophs (d) Lithotrophs
- 2 Which of the following is a trace element?  
(a) Potassium ion (b) Sodium ion  
(c) Copper ion (d) Magnesium ion
- 3 Which of the following is used as solidifying agent?  
(a) Beef Extract (b) Pepton  
(c) Agar Agar (d) Yeast extract
- 4 Fluid thioglycolate medium is used for cultivation of  
(a) Aerobic bacteria (b) Anaerobic bacteria  
(c) Virus (d) All of the Above
- 5 The rate of generation of new bacterial cell becomes equal to the death rate during which growth phase?  
(a) Lag Phase (b) Log phase  
(c) Stationary Phase (d) Decline phase
- 6 MacConkey's agar media used for isolation of Gram-ve bacteria. It is consist of \_\_\_\_\_ which inhibits the growth of Gram+ve bacteria.  
(a) Blood (b) Tryptophan  
(c) Peptone (d) Bile salt
- 7 All laboratory glassware and syringes are best sterilized by  
(a) Hot air oven (b) Boiling  
(c) Irradiation (d) None
- 8 Moist heat kill microorganisms by  
(a) Oxidizing Proteins (b) Breaking down Lipids  
(c) Coagulating Proteins (d) Cellwall destruction
- 9 Which of the following is an example of ionizing radiation  
(a) X rays (b) Gamm rays  
(c) Both A and B (d) U.V. rays
- 10 Disinfectants kill the following microorganism  
(a) All microorganisms (b) Pathogens  
(c) Viruses & Fungi (d) Non pathogens

**Q.2 A State whether the given statements are true or false. 02**

- 1 Autotrophs are the bacteria which will use CO<sub>2</sub> as a sole source of carbon.
- 2 Autoclave is working on the principle of moist heat.

**B Fill in the blanks with appropriate answer. 06**

- 1 \_\_\_\_\_ is the generation time for *Escherichia Coli*.
- 2 Organisms which use light as energy source & CO<sub>2</sub> as their Carbon source are known as \_\_\_\_\_
- 3 Media which inhibit the growth one type of bacteria and allow other type of bacteria to grow are known as \_\_\_\_\_
- 4 Write down the growth equation -----
- 5 Name of the technique which is used to grow bacterial culture continuously
- 6 70% solution of \_\_\_\_\_ alcohol are effective in killing vegetative bacteria.

**Q.3 Give SHORT answers to the following questions. (Attempt Any ten) 20**

- 1 Write briefly about Enriched media.
- 2 Explain facultatively anaerobic bacteria.
- 3 Give disadvantages of Pour plate technique used for isolation of bacteria.
- 4 Define Synchronous growth and Continuous culture.
- 5 What is the difference between Stationary phase and death phase?
- 6 Explain any one technique to achieve Continuous culture.
- 7 What is generation time? Write its equation.
- 8 Mode of action of heavy metals.
- 9 Enlist the factors that determine the time of survival of microorganisms after desiccation.
- 10 Mode of action of Chlorine and its derivatives.
- 11 Write down practical application of triphenylmethane dyes.
- 12 Discuss Pasteurization in brief.

**Q.4 Answer the following LONG Question:- (Attempt any four) 32**

- 1 Detailed note on nutritional classification of bacteria (nutritional types).
- 2 Enlist all methods of isolation techniques and discuss any three in detail.
- 3 Describe common ingredients of media.
- 4 Normal Growth curve of Bacteria.
- 5 Detailed note on measurement of growth.
- 6 Discuss in detail High Temperature as Physical Agent.
- 7 Characteristics of an ideal antimicrobial chemical agent.
- 8 Phenol and Phenolic Compounds as Antimicrobial chemical agents