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SARDAR PATEL UNIVERSITY

B.Sc. EXAMINATION - SEMESTER-3

MICROBIOLOGY-US03CMIC22

Microbial physiology

Date: 21/11/2022

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

Day : Monday

Total marks: 70

N.B: Figures on the right indicate marks.

- Q.1 Multiple Choice Questions. (01 - mark each) (10)
- 1 Medium which is composed of known chemical compounds is called _____ medium.
(a) Synthetic (b) Natural
(c) Complex (d) Selective
 - 2 _____ can grow as either chemolithotrophs or chemoorganotrophs.
(a) *Pseudo.pseudoflava* (b) *B.subtilis*
(c) *P.aeruginosa* (d) *E.coli*
 - 3 Facultative psychrophile grow best at temperature in the range of about _____ °C.
(a) 20--30 (b) 10--20
(c) 5--10 (d) 0-5
 - 4 _____ can be used in conjugation with a microscope to pick a single bacterial cell from a mixed culture.
(a) Microtome. (b) Micromanipulator.
(c) Colony counter. (d) Microscope.
 - 5 _____ technique is used for the isolation of stringent anaerobes.
(a) Roll-tube. (b) Pour plate.
(c) Spread plate. (d) Four-flame technique.
 - 6 The culture preserved by liquid nitrogen method can remain viable for _____ years.
(a) 5 to 10 (b) 10 to 40
(c) 1 to 5 (d) 10 to 30
 - 7 Temperature of 121.5°C of steam under pressure is attained at _____.
(a) 5 lb/in² (b) 10 lb/in²
(c) 15 lb/in² (d) 20 lb/in²
 - 8 Moist heat kills microorganisms by _____.
(a) Oxidizing proteins (b) Breaking down lipids
(c) Coagulating proteins (d) Destroying cell-wall
 - 9 _____ is having more antimicrobial effect on algae & molds than bacteria.
(a) Mercuric chloride (b) Copper sulfate
(c) Metaphen (d) Silver nitrite
 - 10 _____ was used to reduce the incidence of childbed fever.
(a) Hypochlorite (b) Brilliant green
(c) 5% phenol (d) Tincture of Iodine

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(P.T.O.)

- Q.2 Give short answers to the following questions. (Attempt Any Ten) (20)**
- 1 Give chemical composition of medium for growth of *Nitrosomonas europaea*
 - 2 Define: Mixotrophs and microaerophilic bacteria.
 - 3 On which basis, types of media has been categorized?
 - 4 Give the names of different methods used for obtaining synchronous culture?
 - 5 What is the main objective of pour plate technique and spread plate technique?
 - 6 Define: synchronous growth and continuous culture.
 - 7 What is viable cell count? Give the names of different techniques used for viable cell count.
 - 8 Give the disadvantages of pour plate technique.
 - 9 Define: pasteurization.
 - 10 How antimicrobial agents kill or inhibit microorganisms?
 - 11 Mode of action of heavy metals.
 - 12 Enlist the factors that determine action of antimicrobial agent.
- Q.3 (A) Enlist and discuss any two methods used for cultivation of anaerobic bacteria. (5)**
(B) Describe the types of organisms that can use source of electron for their metabolism. (5)
- OR**
- (A) Write on gaseous requirement for bacterial growth. (5)**
(B) Enlist and discuss common ingredients of media. (5)
- Q.4 (A) Write on:- mathematical expression of bacterial growth. (5)**
(B) Write on:- turbidostate. (5)
- OR**
- (A) Write on:- Petroff-Housser counting chamber method. (5)**
(B) Write on:- Diauxic growth. (5)
- Q.5 Write notes on:**
- (A) Desiccation (5)**
(B) Filtration (5)
- OR**
- Write notes on:**
- (A) Low temperature. (5)**
(B) Osmotic pressure (5)
- Q.6 Write notes on:**
- (A) Ideal characteristics of an antimicrobial agent. (5)**
(B) Use of dyes as antimicrobial agent. (5)
- OR**
- Write notes on:**
- (A) Phenol co-efficient. (5)**
(B) Quaternary ammonium compounds as antimicrobial agent. (5)

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