

F.Y.B.SC. SEM – II (CBCS - 2016 COURSE) : WINTER - 2017

SUBJECT: Microbiology: Microbial Nutrition, Growth & Control

Day : Friday
Date : 27/10/2017

W-2017-0557

Time: 03.00 PM TO 06.00 PM
Max Marks: 60

N.B

- 1) All questions are **COMPULSORY**.
- 2) Figures to the **RIGHT** indicate full marks.
- 3) Draw neat labeled diagrams **WHEREVER** necessary.

Q.1 A) Attempt all the following: (MCQ) (06)

- a) An organism that can synthesize all its required organic components from CO₂ using energy from the sun is a
 - i) Photoautotroph
 - ii) Photoheterotroph
 - iii) Chemoautotroph
 - iv) Chemoheterotroph
- b) Psychrophiles would be expected to grow
 - i) In hot springs
 - ii) On the human body
 - iii) At refrigeration temperature
 - iv) At low pH
- c) A phase of very active growth of microorganism is
 - i) Lag phase
 - ii) Exponential phase
 - iii) Stationary phase
 - iv) Death phase
- d) Microbial control method that kill ----- are able to sterilize
 - i) Viruses
 - ii) The tubercle bacillus
 - iii) Endospores
 - iv) Cysts
- e) High temperature ----- and low temperature -----
 - i) Sterilize, disinfect
 - ii) Kill cells, inhibit cell growth
 - iii) Denature proteins, burst cell
 - iv) slow down metabolism, speed up metabolism
- f) The primary mode of action of non-ionizing radiating is to
 - i) Produce superoxide ions
 - ii) Make Pyrimidine dimers
 - iii) Denature proteins
 - iv) Break disulfide bonds

B) Define all the following: (06)

- i) Enrichment media
- ii) Stationary phase
- iii) Chemoheterotrophs
- iv) Strict anaerobes
- v) Virucide
- vi) Pure culture

- Q.2** Attempt any **THREE** of the following: (12)
- a) Name the micronutrients and give their role in microbial nutrition.
 - b) How are soaps and detergents useful in controlling microbial growth?
 - c) What are simple media?
 - d) Explain binary fission
- Q.3** Attempt any **FOUR** of the following: (12)
- a) Describe enriched media
 - b) What are mesophiles?
 - c) What is Lyophilization? Give its use in culture preservation
 - d) What are the features of barophilic organisms?
 - e) Give the use of halogen compounds in controlling microbial growth
- Q.4** Attempt any **TWO** of the following: (12)
- a) Differentiate between selective and differential media.
 - b) Name different methods of uptake of nutrients by the cell. Explain any two methods
 - c) How are microbes grouped based on their oxygen requirement?
- Q.5** Attempt any **TWO** of the following: (12)
- a) What is Tyndallization? Describe in details.
 - b) Enlist chemical agents used in control of microbial growth. Describe the use of alcohols and heavy metals
 - c) Write in short on spread plate method as an isolation/enumeration technique.

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