

[4/A-10]

SEAT No. _____

No. of Printed Pages: 02

Sardar Patel University
B.Sc Biotechnology Third Semester
Tuesday, 4th December 2018
2:00 pm to 4:00 pm
US03EMIC01 (Fundamental Microbiology)

Total Marks: 70

Note:

- 1) Figures to the rights indicate marks
- 2) Draw neat and labeled diagram wherever necessary

Q.1 Multiple Choice Questions

[10]

- 1) _____ Scientist performed an experiment by passing air through cotton into flasks containing heated broth.
 - a. John Tyndall
 - b. Theodar Schwann
 - c. H. Schroder
 - d. Franz Schulze
- 2) The process of ingesting diseased producing bacteria in the body is called as _____.
 - a. pinocytosis
 - b. phagocytosis
 - c. macrocytosis
 - d. None of these
- 3) Bacterial flagella are made up of _____.
 - a. dyenien
 - b. tubulin
 - c. vimetin
 - d. flagellin
- 4) Peptidoglycan layer is polymer made up of _____.
 - a. N-acetyl glucosamine
 - b. amino acids
 - c. N-acetyl muramic acid
 - d. All of above
- 5) Polysomes are _____.
 - a. multiple units of ribosomes
 - b. attachment of many ribosomes to a common mRNA
 - c. attachment of many mRNA to a common ribosomes
 - d. lysosomal aggregations
- 6) In compound microscope, the parts meant for concentrating light to the object from below. It is the _____.
 - a. diaphragm
 - b. mirror
 - c. objective
 - d. condenser
- 7) The differential staining property of Gram staining is primarily due to _____.
 - a. Difference in lipid content of gram +ve and gram -ve bacteria
 - b. Difference in teichoic acid content of gram +ve and gram -ve bacteria
 - c. Difference in protoplasmic content of gram +ve and gram -ve bacteria
 - d. All of these
- 8) In which of following phase secondary metabolites are produces during growth?
 - a. Lag phase
 - b. Log phase
 - c. Stationary phase
 - d. Decline phase

P.T.O.

①

- 9) _____ is an example of differential media.
- | | |
|--------------------------------|-------------------------|
| a. Blood agar media | c. Potato dextrose agar |
| b. Yeast extract mannitol agar | d. All of above |
- 10) Which of the following is a chemolithotrophic organism?
- | | |
|---------------------------------|------------------------------|
| a. <i>Chromatium okenii</i> | c. <i>Treponema pallidum</i> |
| b. <i>Rhodospirillum rubrum</i> | d. <i>Nitrosomonas spp</i> |

Q.2 Answer the following questions (Attempt any TEN) [20]

- 1) Define: Fermentation. Give its importance.
- 2) Write the Koch Postulates.
- 3) Give the contribution of Antony von Leeuwenhoek in the field of microbiology.
- 4) Define: Pili. Give its functions.
- 5) Distinguish between cell wall of gram +ve and gram -ve bacteria.
- 6) Write different morphology of bacteria with suitable examples.
- 7) What are mordants? Give its suitable example.
- 8) Explain principal of negative staining in brief.
- 9) Define: Resolution power
- 10) Give significance of Transitional periods between growth phases.
- 11) What are photolithotrophs? Write its examples.
- 12) Explain facultative autotrophs by using suitable example.

Q.3 Explain in brief development in field of medical and industrial microbiology. [10]

OR

- Q.3 a) Discuss in detail Germ theory of Disease. [06]**
b) Write a note on scientist contribution for development of Agricultural Microbiology. [04]

Q.4 Describe in detail about ultrastructure and different arrangement of flagella. [10]

OR

- Q.4 a) What is endospore? Explain its structure and function in brief. [06]**
b) With the help of labelled diagram explain Fluid mosaic model of cytoplasmic membrane. [04]

Q.5 a) Explain the instrumentation of compound microscope with the help of labelled diagram. [06]

b) Discuss on decolorizers and intensifiers used in staining. [04]

OR

Q.5 a) When and who introduced Gram staining? Write its principal and procedure in short. [06]

b) Give an account on Fixatives used in staining process. [04]

Q.6 Define: Pure culture. Enlist and explain methods for isolation of Pure culture. [10]

OR

Q.6 a) Elaborate on Growth curve of Bacteria. [06]

b) Enlist and give importance of common ingredients of culture media. [04]

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 (2)