

Seat No. _____

[13/A-I]

Sardar Patel University
B.SC. Examination Semester- III
Subject: Microbiology
US03CMIC51 – Fundamentals of Microbiology –1

No. of printed pages: 02



Date: 19/11/2022 (Saturday)

Time: 10:00 A.M. to 01:00 P.M.

Total marks: 70

Q:1 Multiple choice questions

[10]

- Who discovered Simple microscope?
 - Elie Metchnikoff
 - Louis Pasteur
 - Antony van Leeuwenhoek
 - Joseph Lister
- H. Schröder and T. von Dusch used _____ to pass air into flasks containing heated broth.
 - Hot air
 - Strong acid
 - Hot water
 - Cotton
- The space between the cytoplasmic membrane and the outer membrane is called the _____.
 - Periplasmic space
 - Nuclear space
 - Cytoplasm
 - Endoplasmic reticulum
- In bacterial cell, the hair-like outgrowths which attach to the surface of other cells are _____.
 - Flagella
 - Pili
 - Cell membrane
 - Plasmid
- Bacterial chromosome consists of _____ DNA molecules.
 - Single, circular
 - Double, linear
 - Triple, linear
 - Single, linear
- Acid-fast staining is an example of _____.
 - Neutral staining
 - Negative staining
 - Differential staining
 - All the above
- _____ is an example of acidic dye.
 - Crystal Violet
 - Methylene blue
 - Gentian Violet
 - Nigrosine
- Scanning electron microscopy is used to study _____ of the specimen.
 - Internal structure
 - Surface topology
 - Molecular structure
 - Composition
- In prokaryotic cells, ribosomes are _____.
 - 70 S
 - 80 S
 - 90 S
 - 50S
- _____ % value is used to measure similarities between microorganisms.
 - G + A
 - G + T
 - A + T
 - G + C

Q:2 Short answer questions (Write any Ten out of Twelve)

[20]

- Discuss contribution of Elie Metchnikoff.
- Discuss contribution of Paul Ehrlich.
- Discuss contribution of Sergei Winogradsky.
- Explain protoplast.
- Differentiate cell wall of Gram-positive and Gram-negative bacteria.

6. Draw basic structure of bacterial cell.
 7. Explain resolving power.
 8. Differentiate bright field and dark field microscopy.
 9. Define mordant and write its applications in staining process.
 10. Write down divisions of Bergey's manual and their names.
 11. Explain role of percent similarities (%S) in classification of bacteria.
 12. Enlist techniques used for culture preservation.
- Q:3** A. Explain applied areas of microbiology in detail. 05
 B. Explain germ theory of disease in detail. 05
- OR**
- A. Discuss theory of spontaneous generation verses theory of biogenesis. 05
 B. Discuss development of laboratory techniques and pure cultures in detail. 05
- Q:4** A. Discuss in detail about size, shape and arrangement of bacterial cells. 05
 B. Explain ultrastructure of bacterial flagella. 05
- OR**
- A. Explain bacterial capsules in detail. 05
 B. Define bacterial spore and explain process of sporulation in detail. 05
- Q:5** A. Explain principle, procedure and advantages of monochrome staining. 05
 B. Explain principle and procedure for Gram staining. 05
- OR**
- A. Explain fluorescence microscopy in detail. 05
 B. Explain Transmission Electron Microscopy in detail. 05
- Q:6** A. Discuss Whittaker's five kingdom concept in detail. 05
 B. Enlist major characteristics of the microorganisms and explain cultural characteristics in detail. 05
- OR**
- A. Explain difference between prokaryotic and eukaryotic cells. 05
 B. Explain techniques used for isolation of microorganisms in detail. 05

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