

SEAT No. _____

No. of Printed Pages: 2

[86]

SARDAR PATEL UNIVERSITY

B. Sc. (MICROBIOLOGY)

Semester: III

US03CMIC01-Fundamentals of Microbiology – I (NC)

Date: 02/01/2021

Time: 02 pm to 04 pm

Total Marks 70

Q:1 MCQ question (One mark each).

[10]

- 1 Who demonstrated that open tubes of broth remained free of bacteria when air was free of dust?
 - a. L. Spallanzani
 - b. John Tyndall
 - c. Francesco Redi
 - d. Louis Pasteur
- 2 Term vaccine was coined by _____.
 - a. Robert Koch
 - b. Louis Pasteur
 - c. J. Needham
 - d. None of these
- 3 This is the site of energy production in a prokaryotic cell _____.
 - a. Micro body
 - b. Chromosome
 - c. Ribosome
 - d. Cell membrane
- 4 Which of the following lack cell wall?
 - a. Mycoplasma
 - b. Spirochetes
 - c. Actinomycetes
 - d. Bacillus
- 5 Bacillus is an example of _____.
 - a. Gram positive bacteria
 - b. Gram negative bacteria
 - c. Virus
 - d. Viroid
- 6 Gram staining is an example of _____.
 - a. Simple staining
 - b. Differential staining
 - c. Negative staining
 - d. None of these
- 7 Bacterial locomotion is accomplished by _____.
 - a. Fimbria
 - b. Flagella
 - c. Cytoskeleton
 - d. Both a and b
- 8 Limit of resolution of compound microscope is _____.
 - a. 0.22 nm
 - b. 0.1 mm
 - c. 5 nm
 - d. 1.0 mm
- 9 The refractive index of immersion oil is _____.
 - a. 1.9
 - b. 1.5
 - c. 0.5
 - d. 1.0
- 10 Which of the following is a fluorescent dye?
 - a. Basic fuchsin
 - b. Malachite green
 - c. Gention Violet
 - d. None of these

Q:2 Fill in the blanks (One mark each).

[08]

- A
1. _____ is the father of microbiology.
 2. Microscope was first invented by _____.
 3. _____ structure of the bacteria is responsible for characteristic shape of the cell.
 4. Refractive index of air is _____.
- B
- Mention true or false.
1. Chromophore group present in dye provides color to object.
 2. Phase contrast microscopy is used to study dead organism.
 3. Bacterial spore is a dormant form of bacteria.

4. Cationic dye has negative charge.

Q:3 Short answer questions (Attempt any 10 out of 12).

[20]

- 1 Discuss contribution of Joseph Lister.
- 2 Discuss contribution of Alexander Flaming.
- 3 List the branches of microbiology.
- 4 What is the role of intensifier in staining procedure?
- 5 What is the role of mordant in staining procedure?
- 6 Write the applications of vital staining.
- 7 Define protoplast and spheroplast.
- 8 Write functions of prosthecae and stalks.
- 9 Write functions of bacterial capsule.
- 10 Write importance of dark field microscopy.
- 11 Write limitations of electron microscopy.
- 12 Explain resolving power.

Q:4 Long answer question (Attempt any 4 out of 8).

[32]

- 1 Explain widening horizons of microbiology in detail.
- 2 Explain theory of biogenesis versus abiogenesis in detail.
- 3 Define dye and explain chemistry of dyes and stains as well as types of dyes.
- 4 What is differential staining? Explain Gram staining in detail.
- 5 Explain structure and chemical composition of bacterial cell wall.
- 6 Explain structure and functions of bacterial flagella.
- 7 Define fluorescence and explain fluorescence microscopy.
- 8 Explain electron microscopy in detail.

————— X —————