Unit 1 History of Development of Microbiology

Very short answer/One word answer questions (1 mark)

SL. No.

- 1. What was the magnification of the microscope made by Leeuwenhoek?
- 2. What did Francesco Redi disprove?
- 3. Name the scientists credited with establishing the cell theory.
- 4. Who proposed "Omnis cellula a cellula?"
- 5. What will the effect of altitude on microbial growth be and why?
- 6. What is the origin of the word "yeast"?
- 7. What is Girolamo Fracastoro famous for?
- 8. Who invented the art of drying and fixing the bacterial smear on a glass slide before observation under a microscope?
- 9. What is meant by semi-synthetic penicillin?
- 10. Who discovered streptomycin?

Short questions (2 marks)

SL. No.

- 1. How did Spallanzani disprove Needham's hypothesis in support of spontaneous generation?
- 2. In the late 19th century, an invention by Joseph Lister revolutionized surgery and significantly brought down the death rate. What was it?
- 3. What is a "magic bullet"?
- 4. What is the role of potassium tri-iodide in Gram staining?
- 5. What will happen if a yeast cell is Gram stained?
- 6. What is a Mycorrhiza?
- 7. What will be the difference in growth rate between a leguminous and a non-leguminous plant in terms of added nitrogenous fertilizer?
- 8. What do you mean by chemolithotrophic autotrophy? Give an example.
- 9. What is a Winogradsky column?
- 10. "Black Death" is one of the most devastating bacterial pandemic in the history of humankind.

State how did it happen?

Broad questions (more than 2 marks)

SL. No.

- <u>1.</u> Describe how Pasteur's work conclusively disproved the theory of spontaneous generation?
- 2. Name any three significant contributions of Robert Koch to the discipline of practical microbiology.
- 3. State Koch's postulates.
- 4. Differentiate between variolation and vaccination.
- 5. Describe how Pasteur discovered serendipitously the vaccine for chicken cholera?
- 6. State the advantages and disadvantages of attenuated and heat killed vaccines.
- 7. State the fundamental difference in the mechanism of staining between nigrosine and methylene blue?
- 8. Give reasons why *Beggiatoa*, the soil bacteria became famous?
- 9. Who is known as the father of virology? State his contribution in this field.
- 10. State the contribution of Paul Ehrlich in the field of chemotherapy?

Unit 2: Diversity of Microbial World

Very short answer/One word answer questions (1 mark)

SL. No.

- 1 Name the causative agent of Giardiasis and Leishmaniasis.
- 2 Define the term "Digenetic parasite".
- Name a bacterial species classified as high G+C gram-positive.
- 4. Define strain.
- 5. Why does bacterial species definition and biological species definition differ?
- 6. What is Mycology?
- 7. Name the type of phospholipids present in the cytoplasm membrane of the archaea-bacteria?
- 8. How are Mycoplasmas different from the other prokaryotes?

Short questions (2 marks)

SL. No.

- 1. Write the role of algae in agriculture?
- 2. What are mycotoxins?
- 3. What are the characteristic features of Giardia?
- 4. What are the two different forms of Leishmania? What is leptomonad form?
- 5. What is the basis of taxonomic classification?
- 6. Mention the similarities between archaea and bacteria.
- 7. How does the phenetic system of classification differ from a phylogenetic classification system?
- 8. With a proper example define type strain of a species.
- 9. Define Morphovar, biovar and serovar.

Broad questions (more than 2 marks)

SL. No.

- 1. Describe the economic importance of fungi in medicine, food and biodeterioration.
- 2. Write the role of algae in industry, food and environment separately.
- 3. Write the life cycle of *Leishmania donovani* with a proper diagram.
- 4. Distinguish between the Bacteria, Archaea and Eukaryotes.
- 5. Discuss about the merits and demerits of five kingdom classification.
- 6. What were the criteria for Whittaker's five kingdom classification?
- 7. Why is rRNA considered a good "chronometer"
- 8. What are the salient features of Three domain classification?

Unit 3:An overview of scope of Microbiology

Very short answer/One word answer questions (1 mark)

SL. No.

- 1. What is microbiology?
- 2. What microbiology deals with dispersal of pathogenic microbes through air?

3. What is Geo-chemical Microbiology?

Short questions (2 marks)

SL. No.

- 1. Write the different branches of Microbiology.
- 2. What are the differences between soil microbiology and water microbiology?

Broad questions (4 marks)

SL. No.

1. Write the role of different scopes of microbiology in separate sections.