



Seat No. _____

HAM-003-2013016
B. Sc. (Sem. III) (CBCS)
(W.E.F. 2019) Examination
June - 2023
301 : Microbiology
(Microbial Diversity) (New Course)

Faculty Code : 003
Subject Code : 2013016

Time : $2\frac{1}{2}$ Hours / Total Marks : 70

- Instructions :** (1) Right side figures indicate mark of the question.
(2) Draw the figures wherever necessary.
(3) Write answers of all the questions in main answer sheet.

- 1** (a) Answer the following : **4**
- (1) _____ is the scientific study of naming, defining and classifying groups of biological organisms based on shared characteristics.
- (2) Define Biodiversity.
- (3) Phenetic classification is based on the study of the evolutionary relationship of the organisms. True or False.
- (4) What do you mean by strain ?
- (b) Answer in Brief : (Any **One**) **2**
- (1) Explain Importance of Microbial diversity.
- (2) What is Metagenomics ? Write two applications of it.
- (c) Answer in Detail : (Any **One**) **3**
- (1) Write a note on Molecular Phylogeny.
- (2) Discuss Numerical Taxonomy.

- (d) Write a note on : (Any **One**) 5
- (1) Taxonomic Ranks.
 - (2) Major characters used in taxonomy.
- 2 (a) Answer the following : 4
- (1) Define Endospore.
 - (2) _____ bacteria are not killed outright by the presence of oxygen, but are able to tolerate only sub-atmospheric levels of oxygen in their environment.
 - (3) Lactobacillus is the example of Asporogenous Rod. True/False.
 - (4) Give two examples of gram negative cocci.
- (b) Answer in Brief : (Any **One**) 2
- (1) Explain Dissimilatory Sulphate Reducing Bacteria.
 - (2) Write two distinguishing features of Gram negative and positive bacteria.
- (c) Answer in Detail : (Any **One**) 3
- (1) Write general characteristics of Facultative anaerobic Gram negative rods.
 - (2) Discuss Photosynthetic Bacteria
- (d) Write a note on : (Any **One**) 5
- (1) Enterobacteriaceae family.
 - (2) Endospore Formers.
- 3 (a) Answer the following : 4
- (1) Define Extremophiles.
 - (2) _____ are semi-rigid extensions of the cell wall and cytoplasmic membrane and have a diameter that is always less than of the cell.
 - (3) *Chlamydia psittaci* is the causative agent of psittacosis. True/False.
 - (4) Write two examples of budding bacteria.
- (b) Answer in Brief : (Any **One**) 2
- (1) Explain Sheathed Bacteria.
 - (2) Define Thermophile and Enlist habitats of Thermophiles.

- (c) Answer in Detail : (Any **One**) **3**
- (1) Discuss general characteristics of Mycoplasma.
 - (2) Discuss General characteristics of Chlamydia.
- (d) Write a note on : (Any **One**) **5**
- (1) Archaeabacteria.
 - (2) General Characteristics and life cycle of Rickettsia.
- 4** (a) Answer the following : **4**
- (1) What do you mean by Fruiting body ?
 - (2) _____are eukaryotic, single-celled microorganisms of the fungus kingdom.
 - (3) Protozoa reproduce by only sexual means. True/False.
 - (4) Write any two characteristics of algae.
- (b) Answer in Brief : (Any **One**) **2**
- (1) Draw ultrastructure of protozoa.
 - (2) Discuss occurrence and distribution of algae.
- (c) Answer in Detail : (Any **One**) **3**
- (1) Explain reproduction in Mucor.
 - (2) Discuss economic importance of Algae.
- (d) Write a note on : (Any **One**) **5**
- (1) Economic Importance of Fungi.
 - (2) General Characteristics, Occurrence and Economic importance of Protozoa.
- 5** (a) Answer the following : **4**
- (1) What do you mean by Lysogeny?
 - (2) The protein shell of a virus, enclosing its genetic material is known as _____.
 - (3) Prions are composed solely of a short strand of circular, single-stranded RNA that has no protein coating. True/False.
 - (4) Name any two plant viruses.

- (b) Answer in Brief : (Any **One**) **2**
- (1) Explain the structure of HIV virus.
 - (2) What are viroids and prions ?
- (c) Answer in Detail : (Any **One**) **3**
- (1) Discuss Lysogeny.
 - (2) Explain Possible Capsid Symmetry in viruses.
- (d) Write a note on : (Any **One**) **5**
- (1) Lytic cycle of T₄ phage
 - (2) Cultivation of viruses.
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