

End Semester Examination
BT-002: Microbiology
B.Tech. Biotechnology
Instructor: Dr. Akepati S. Reddy

Date: 14-12-2006

Time: 9-00 to 12.00 hours

Max. Marks: 100

Q.1. Answer **all** the following:

- 1.1 Differentiate antiseptic from disinfectant?
- 1.2 Sarcine refers to what?
- 1.3 What are plasmids?
- 1.4 List the different types of RNA involved in the protein synthesis?
- 1.5 Indicate cell wall materials for algae, fungi, and bacteria?
- 1.6 Arrange family, phylum, strain, order, species, class, family and genus in a hierarchical order?
- 1.7 What are Akinetes?
- 1.8 Indicate any two major metabolic differences between pseudomonads and enterics?
- 1.9 State how viruses are different from viroids and prions?
- 1.10 What is polyprotein?
- 1.11 What is serotype?
- 1.12 What is Reye syndrome?
- 1.13 What is mixotroph?
- 1.14 What is coenobium?
- 1.15 What is diatomaceous earth?
- 1.16 What for cavity slide is used?

Q.2. Answer **all** the following:

- 2.1 Write note on group translocation?
- 2.2 Discuss how prokaryotic ribosomes differ from the eukaryotic ribosomes?
- 2.3 Indicate the basic types of microorganisms on the basis of their source of energy and source of carbon?
- 2.4 What are cladograms? Indicate the basis for the construction of cladograms?
- 2.5 List the inorganic compounds usually utilized by lithotrophs as sources of energy?
- 2.6 Indicate the steps involved in the replication cycle of an animal virus?
- 2.7 Discuss how HIV infection leads to immune deficiency in the host?
- 2.8 Write note on red tides?
- 2.9 Write note on slime net?
- 2.10 Write note on negative staining?

Marks:10x2=20

Q. Answer **any eight** of the following:

- 3.1 Write note on the conditions to be satisfied while writing the name of an organism according to binomial nomenclature?
- 3.2 Discuss the role played by different types of RNA in the protein synthesis at ribosomes?
- 3.3 Discuss how gram-negative bacteria, gram-positive bacteria, acid-fast bacteria and micoplasma differ in their cell wall structure and composition?
- 3.4 Write note on the functions performed by lysosomes?
- 3.5 Differentiate biological nitrogen fixation from nitrification and denitrification?
- 3.6 Discuss how viruses are believed to cause cancer?
- 3.7 Discuss the sequence of events that might have resulted in the evolution of eukaryotes from prokaryotes?
- 3.8 List the classes included in protozoa and give at least one salient feature and one example for each of the classes?
- 3.9 Write note on the life cycle types of algae?
- 3.10 Write note on the culture preservation techniques?



Q.4. Answer **any five** of the following:

- 4.1 Write note on the contributions made by Louis Pasteur in the field of microbiology?
- 4.2 Write note on the structure of bacterial flagellum and discuss how it differs from the flagella of eukaryotes?
- 4.3 Write note on Bergey's manuals?
- 4.4 Write note on viral vaccines and indicate advantages and disadvantages of different types of viral vaccines?
- 4.5 Write note on plasmodial slime molds and discuss how they differ from cellular slime molds?
- 4.6 Write note on dilution plate technique and differentiate pore plate technique from spread plate technique?

Marks: $5 \times 4 = 20$

Q.5. Answer **any four** of the following:

- 5.1 Write note the Whittaker's classification of life forms and relate this classification with the 3-domain system of classification and with the 7-kingdom classification of life forms?
- 5.2 Indicate different types of phosphorylation and the place of their occurrence both in mitochondria and chloroplasts? What is chemiosmosis and describe how it brings about phosphorylation?
- 5.3 Write note on *Mycobacterium*?
- 5.4 Describe the replication cycle of hepatitis B virus?
- 5.5 Write note on the photosynthetic pigments of different groups algae?

Marks: $4 \times 5 = 20$