



# Shree H.N. Shukla College of Science Rajkot

B.Sc. [Sem- 3]

## Microbiology prelims Paper – 2017

Time: 9:30 – 12:00

[Total marks- 70]

### Q. 1 Answer the following question

#### A. Objective Questions

[4 marks].

1. Define Numerical Taxonomy.
2. Define Simple Matching Coefficient.
3. Biodiversity
4. What is “*evolutionary distance*”?

#### B. Short question. Any one

[2 marks.]

1. Importance of taxonomy.
2. Molecular Chronometer.

#### C. Write note on. Any one

[3 marks].

1. Metagenomics.
2. Phenetic Classification.

#### D. Write note on. Any one

[5 marks]

1. Characters used in taxonomy.
2. Taxonomic ranks.

### Q. 2 Answer the following question

#### A. Objective Questions

[4 marks].

1. Archaeal membrane lipids contain branched \_\_\_\_\_ instead of fatty acids.
2. Bacteria such as *Rhizobium* are able to \_\_\_\_\_ atmospheric nitrogen in association with the roots of \_\_\_\_\_ plants.
3. *Bacillus* and *Clostridium* are Gram-positive genera characterized by their ability to form \_\_\_\_\_ .
4. Walls of the genus *Mycobacterium* contain \_\_\_\_\_ acids.

#### B. Short question. Any one

[2 marks].

1. Spirochaetes
2. *Bdellovibrio*

#### C. Write note on. Any one

[3 marks].

1. Filamentous bacteria
2. Methanogens.

#### D. Write note on. Any one

[5 marks]

1. Family : *Pseudomonadaceae*
2. Endospore forming bacteria

**Q. 3 Answer the following question**

**A. Objective Questions**

**[4 marks].**

1. The principal component of fungal cell walls is \_\_\_\_\_.
2. Unicellular yeasts reproduce asexually by the process of\_\_\_\_\_.
3. The\_\_\_ connection is a morphological feature unique to basidiomycetes.
4. Categorized according to their carbon and energy sources, all fungi are\_\_\_\_\_.

**B. Short question**

**.[ 2 marks].**

1. How are algae similar to and different from higher green plants?
2. With the help of suitable diagrams, describe the cell structure of an eukaryotic algae

**C. Write note on. Any one**

**[3 marks].**

1. What is the derivation of the name protozoa? How are protozoa distinguished from other eukaryotic protists?
2. Describe the food gathering structures found in the ciliated protozoa.

**D. Write note on. Any one**

**[5 marks ]**

1. Both bacteria and fungi are major environmental decomposers. Obviously competition exists in a given environment, but fungi usually have an advantage. What is this advantage?
2. Write general characters of Fungi.

**Q. 4 Answer the following question**

**A. Objective Questions**

**[4 marks. ]**

1. Define Virus.
2. Define Obligate Parasite
3. Which gene expression favors lysogeny in lambda phage?
4. Give an example of mutation causing phage.

**B. Short question. Any one**

**[2 marks. ]**

1. Differentiate between Virus and Virions.
2. Write a note on Lock washer confirmation change in TMV.

**C. Write note on. Any one**

**[ 3 marks].**

1. Discuss Head assembly in brief.
2. Explain repressor protein of lambda phage.

**D. Write note on. Any one**

**[ 5 marks ]**

1. Write a note on nucleic acids found in viruses.
2. Write a note on LHT classification of viruses.

**Q. 5 Answer the following question**

**A. Objective Questions**

[ 4 marks].

1. Pollutants.
2. Biodegradation.
3. Bioremediation.
4. Biomagnification.

**B. Short question. Any one**

[2 marks].

1. Metal corrosion.
2. What is air pollution?

**C. Write note on. Any one**

[3 marks].

1. Write short note on biomagnification of pesticide.
2. Discuss biodeterioration of paper and wood.

**D. Write note on. Any one**

[ 5 marks ]

- 1) Write note on Bioplastics.
- 2) Write note on microbial enhanced oil recovery.