This question paper contains **2** printed pages]

NEPNY—15—2023

FACULTY OF SCIENCE AND TECHNOLOGY

M.Sc. (NEP) (First Year) (First Semester) EXAMINATION

NOVEMBER/DECEMBER, 2023

MICROBIOLOGY

PapeR-CC-401

(Microbial Diversity and Evolution)

(Wednesday, 20-12-2023) **Time : 10.00 a.m. to 1.00 p.m.**

Time—3 *Hours* *Maximum Marks*—80

N.B. :— (*i*) Question No. **1** is compulsory.

(*ii*) Of the remaining attempt any *three* questions.

(*iii*) Draw neat and labelled diagrams wherever necessary.

1. Write brief notes on the following : 20

(*a*) Classical taxonomy

(*b*) Nanoarcheaum

(*c*) Cyanobacteria

(*d*) Deferribacter.

P.T.O.

2. (*a*) Take a detailed account of endosymbiosis theory and its role in origin of eukaryotes. 10

(*b*) Describe in detail phylogenetic classification of bacteria with detailed phylogenetic diagram. 10

3. (*a*) Take a detailed account of mode of nutritional metabolism in Archaea. 10

(*b*) Take a detailed account of phylum Crenarchaeota. 10

4. (*a*) Describe in brief bacterial phylum Plactomycetes. 10

(*b*) Write on the role of proteobacteria in nitrogen cycle. 10

5. (*a*) Discuss bacterial deep branching hyperthermophiles, thermotoga and aquifex. 10

(*b*) Take a detailed account of phylum Green Non-sulfur bacteria. 10

6. Write brief notes on the following : 20

(*a*) Signature sequences

(*b*) Methanogens

(*c*) RNA world

(*d*) Nitrospira.