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## NEPNY—51—2023

### FACULTY OF SCIENCE AND TECHNOLOGY

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

NOVEMBER/DECEMBER, 2023

#### MICROBIOLOGY

Paper SMICC-403

(Microbial Physiology and Metabolism)

**(Tuesday, 26-12-2023)**

**Time : 10.00 a.m. to 1.00 p.m.**

*Time—Three 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 diagram wherever required.

1. Write brief notes on the following :

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(a) Substrate level phosphorylation

(b) Chlorophyll-a

(c)  $\alpha$ -ketoglutarate family of amino acids

(d) Diazotrophs.

P.T.O.

2. (a) Describe in detail the phosphoketolase pathway. 10
- (b) Explain in detail the synthesis of glucose. 10
3. (a) Write down the  $C_3$  pathway in detail. 10
- (b) Take a detailed account of ketogenesis process. 10
4. Write notes on :
- (a) Synthesis of Adenine through salvage pathway. 10
- (b) Biosynthesis of amino acids of pyruvate family. 10
5. (a) Describe in detail the process of nitrification. 10
- (b) Write down the nitrogen cycle. 10
6. Write down the brief notes on the following : 20
- (a) Phosphofructokinase
- (b) Purple sulfur bacteria
- (c) Arginine biosynthesis
- (d) Symbiotic nitrogen fixing bacteria.