RAN-2203000205026003

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T. Y. B. Sc. (Sem. - V) Examination March - 2023

Microbiology : MB - 503

Microbial Metabolism

Time: 2 Hours] **[Total Marks: 50**

સૂચના : / Instructions

(1) નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fill up strictly the details of ☛ signs on your answer book

Name of the Examination:

☛ **T. Y. B. Sc. (Sem. - V)**

Name of the Subject :

☛ **Microbiology : MB - 503 Microbial Metabolism**

Subject Code No.: **2203000205026003**

Seat No.:

Student's Signature

(2) Figures to the right indicate full marks of the question.
(3) Draw neat and labelled diagrams whenever necessary.

Q. 1 **Give Specific answers.** **12**

a. What do ΔG and ΔS represent in thermodynamics? How are they related?

b. Give full form of: NADPH & FMN

c. Define Oxygenic photosynthesis. State its significance.

d. Which multienzyme system is needed to synthesize acetyl co-A from pyruvate? Why acetyl co-A is called energy rich molecule?

e. Mention the importance of reductive TCA cycle. How does it differ from Krebs cycle?

f. Explain: $(\text{Glucose})_n + \text{P1} \rightarrow (\text{glucose})_{n-1} + \text{glucose-1-P}$

Q. 2 **Explain / comment on any two of the following:** **12**

a. Fatty acids are a rich source of energy for microorganisms.

b. Nitrifying bacteria are of considerable ecological significance.

c. The pentose phosphate pathway is an important amphibolic pathway.

Q. 3 **Discuss any two of the following:** **16**

a. What is ETC? Discuss in detail the components of ETC.

b. Explain the pathway of glycolysis with its importance for microorganisms?

c. Compare and contrast anoxygenic phototrophy and oxygenic photosynthesis. How do these two types of phototrophy differ from rhodopsin-based phototrophy?

Q. 4 **Write short notes on any two of the following:** **10**

a. ATP- as high energy molecule.

b. Protein catabolism.

c. Mixed acid Vs. Butanediol fermentation.
