

SSES Amti's Science College, Nagpur  
Preliminary Examination  
Winter-2023  
B.Sc. Semester - III  
**BIOTECHNOLOGY**  
PAPER – I (Metabolism)

Time: 3 Hrs.

Max. Marks: 50

Note: 1) All questions are compulsory.  
2) All questions carry equal marks.

- Q.1) Describe in detail the process of Glycolysis and its regulation. 10  
OR  
a) Explain ATP as a high energy compound. 05  
b) Discuss the entry of other sugars into glycolytic pathway. 05
- Q.2) Describe TCA cycle in detail. 10  
OR  
Explain electron transport chain. 10
- Q.3) Describe in detail  $\beta$ -oxidation of fatty acids. 10  
OR  
a) Explain the formation of ketone bodies.  
b) Explain  $\alpha$ -oxidation of fatty acid with example. 05
- Q.4) Describe in detail Urea cycle and its regulation 10  
OR  
a) What is oxidative deamination process? Explain with the help of an example. 5  
b) Discuss briefly Salvage pathway? 5
- Q.5) Solve any ten. 10 x 1 = 10
- i) What is Enthalpy?
  - ii) Define redox potential?
  - iii) Enlist inhibitors of glycolytic enzymes.
  - iv) Draw a well labeled diagram of Mitochondria.
  - v) What is ketoacidosis?
  - vi) Draw structure of Fo-F<sub>1</sub> ATPase complex.
  - vii) Write about  $\omega$ - oxidation of fatty acids.
  - viii) Define Gibbs free energy.
  - ix) What are anapleoretic reactions?
  - x) Enlist disorders related to Urea cycle.
  - xi) Draw structure of Coenzyme-Q.
  - xii) Draw molecular structure of creatine phosphate..