Progressive Education Society's

**Modern College of Arts, Science & Commerce Ganeshkhind, Pune – 16 (Autonomous)**

**End Semester Examination: MAR / APR 2025**

***Total No. of Questions**: 3 / 17* ***Total No. of Pages**:1*

# FIRST YEAR (B.Sc. Biotechnology)

## 24BIO12105: METABOLISM AND PHYSIOLOGY

## (Semester II)

**Program:B.Sc.(04)** **Credits: 2**
**Program Specific: B.Sc.Biotechnology** **Time: 2 Hours**
**Course Type: Major** **Max. Marks: 30**
**Paper:** **SET: A**

***Instructions to the candidate:***

1) *All questions are compulsory.*
2) *Figures to the right indicate full marks.*
3) *Draw a well labelled diagram wherever necessary.*

**Q1)** Attempt **ANY SIX** of the following: **[6 X 2 = 12]**

a) What is ATP? Draw its structure.
b) What is the fate of pyruvate in animal cells under anaerobic conditions?
c) Differentiate between essential and non-essential amino acids.
d) What is pyruvate dehydrogenase complex?
e) Enlist all precursors for pyrimidine synthesis.
f) What is the cause of albinism?
g) Write the names of two ketone bodies with their significance.
h) Give any two examples of group transfer reaction.

**Q2**) Attempt **ANY THREE** of the following: **[3 X 4 = 12]**

a) Discuss the key steps of glycolysis pathway and its regulation.
b) Illustrate synthesis of purine nucleotides by Salvage pathway.
c) Describe β-oxidation pathway with its energetics.
d) Explain physiology of microbial growth with respect to different phases.
e) Describe Hexose monophosphate shunt with its significance.

**Q3)** Attempt **ANY TWO** of the following: **[2 X 3 = 06]**

a) Comment on oxidative phosphorylation.
b) Name the defective enzyme,biochemical reaction and clinical symptoms associated with Maple syrup urine disease.
c) Explain in brief odd chain fatty acid oxidation.
d) Give a brief account of biotic stress responses in plants.

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