Progressive Education Society's

Modern College of Arts, Science & Commerce Ganeshkhind, Pune – 16, NEP 2020 (Autonomous)

End Semester Examination: March/April 2025

***Total No. of Questions**: 4/18* ***Total No. of Pages**: 2*

SECOND YEAR (Biotechnology)
BIO2424: Metabolism and Bioanalytical Techniques
(Semester IV)

Program: BSc. Biotech (04) **Credits:** 2
Program Specific: Biotechnology **Time:** 2 Hours
Course Type: Minor **Max. Marks:** 30
Set: A

Instructions to the candidate:

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

SECTION: A

Q1) Answer the following **[5 X 1= 5]**

1. Enlist any two types of metabolic pathways.
2. Enlist the regulatory enzymes of glycolysis.
3. What are conditionally essential amino acids?
4. Name the byproduct released after the degradation of purine.
5. Write the role of SDS in SDS-PAGE.

SECTION: B

Q2) Answer the following (Attempt any 5/7) **[5 X 2 =10]**

1. Differentiate between anabolism and catabolism.
2. How citric acid cycle contribute to ATP synthesis?
3. State any 4 examples of semi-essential amino acids.
4. Give the names of any 4 proteins of the fatty acid synthase complex.
5. State the principle of HPLC.
6. Write the principle of molecular exclusion chromatography.
7. Prepare a solution A of 0.45 M volume 200 mL (Molecular weight of solute is 340).

P.T.O.

SECTION: C

Q3) Answer the following/Write short notes on the following (Attempt any 2/4) [2 X 5 = 10]

1. With the help of a well-labeled diagram explain the electron transport chain.
2. Summarize the De novo synthesis of purine nucleotides.
3. With the help of one example each explain transamination and deamination reactions.
4. Discuss the principle and applications of U.V Visible Spectrophotometer.

SECTION: D

Q4) Answer the following (Attempt any 1/2) [5 X 1 = 5]

1. Describe the oxidation of unsaturated fatty acids in detail.
2. Discuss in detail Principle and working of agarose gel electrophoresis

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