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KONCEPT WHEEL

Learn CSIR NET Concepts

Retain Better

Recall Faster

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Koncept Wheel Is a starting point for anyone looking to gain control of their CSIR NET Life Science Exam Preparation.

- Shekhar Suman
CEO MD Biotecnika.

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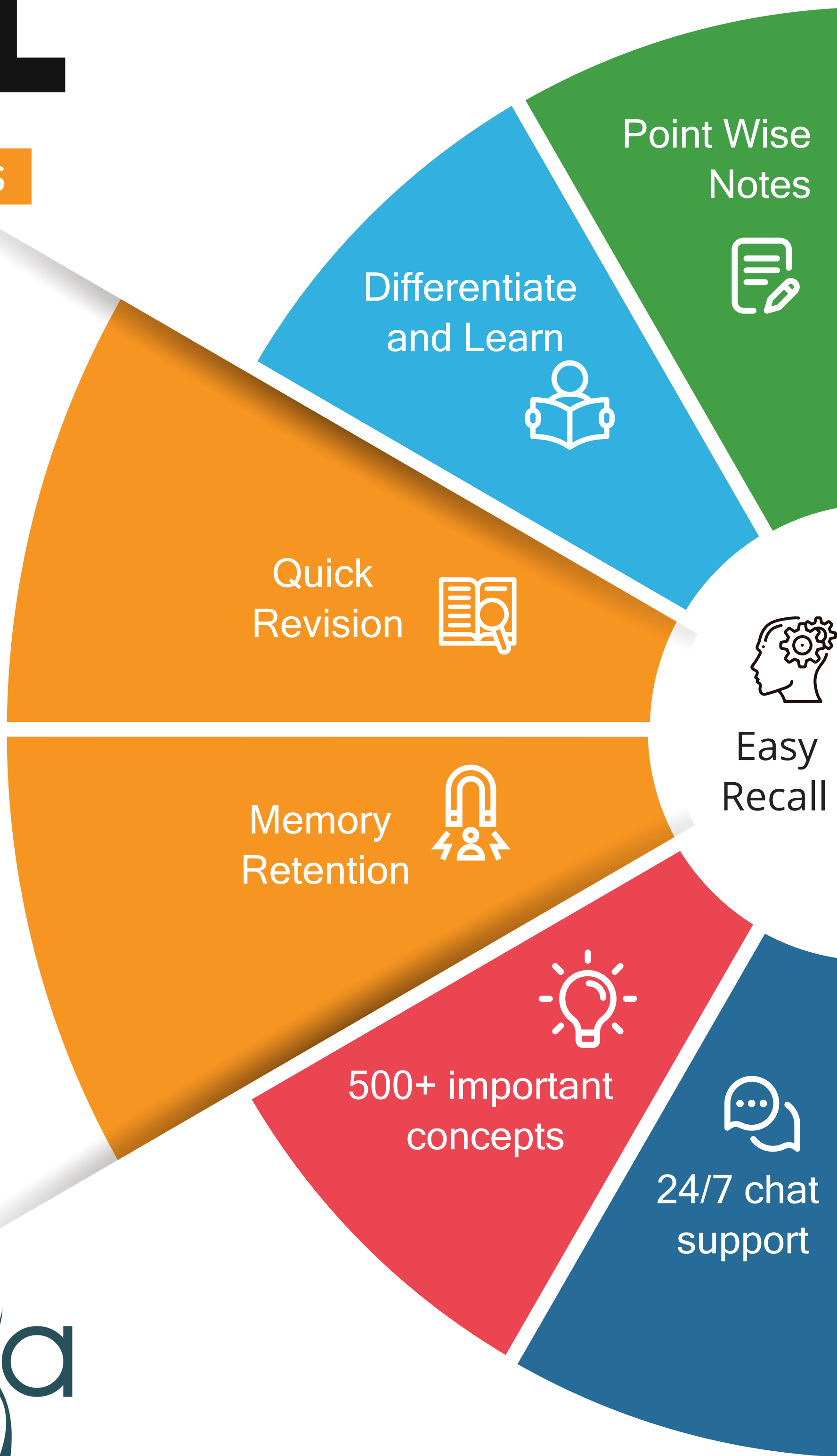

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Disclaimer

PREFACE

Biotecnika, the most trusted study partner for every CSIR NET and GATE aspirant, is committed to making your exam preparation process easy, efficient, and effective. Biotecnika team came up with the unique Konceptika range of products, which precisely aims to do the same. Adding another feather to the cap is Biotecnika's latest study aid-**Koncept Wheel.**

To excel in CSIR NET Exam, students need to develop a deep understanding of the concepts, prepare brief notes for revisions, and spend an equal amount of time recalling each topic learned. Given the vast nature of the syllabus, aspirants might fall short of time to make detailed notes. .

Koncept Wheel is a compilation of **500+** important topics from the CSIR NET syllabus. These topics are broken down and depicted in the form of a wheel, each spoke of the wheel represents the important definitions, features, examples, etc. These Koncept Wheels will help students understand the concepts easily in a short period of time.

Koncept Wheel is one tool that will change the way you prepare for the exams. With this revolutionary study tool, you can now- Learn quicker, recall faster, and retain longer. By preparing smart with Biotecnika's study tools, stay one step ahead in your exam preparation.

Thank you for choosing Biotecnika's Koncept wheel. We would love to know your feedback, email us at **cst@biotecnika.org**

Shekhar Suman

CEO & MD - BIOTECNIKA & RASAYANIKA

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UNIT 1

Molecules and their Interaction Relevant to Biology

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UNIT 1

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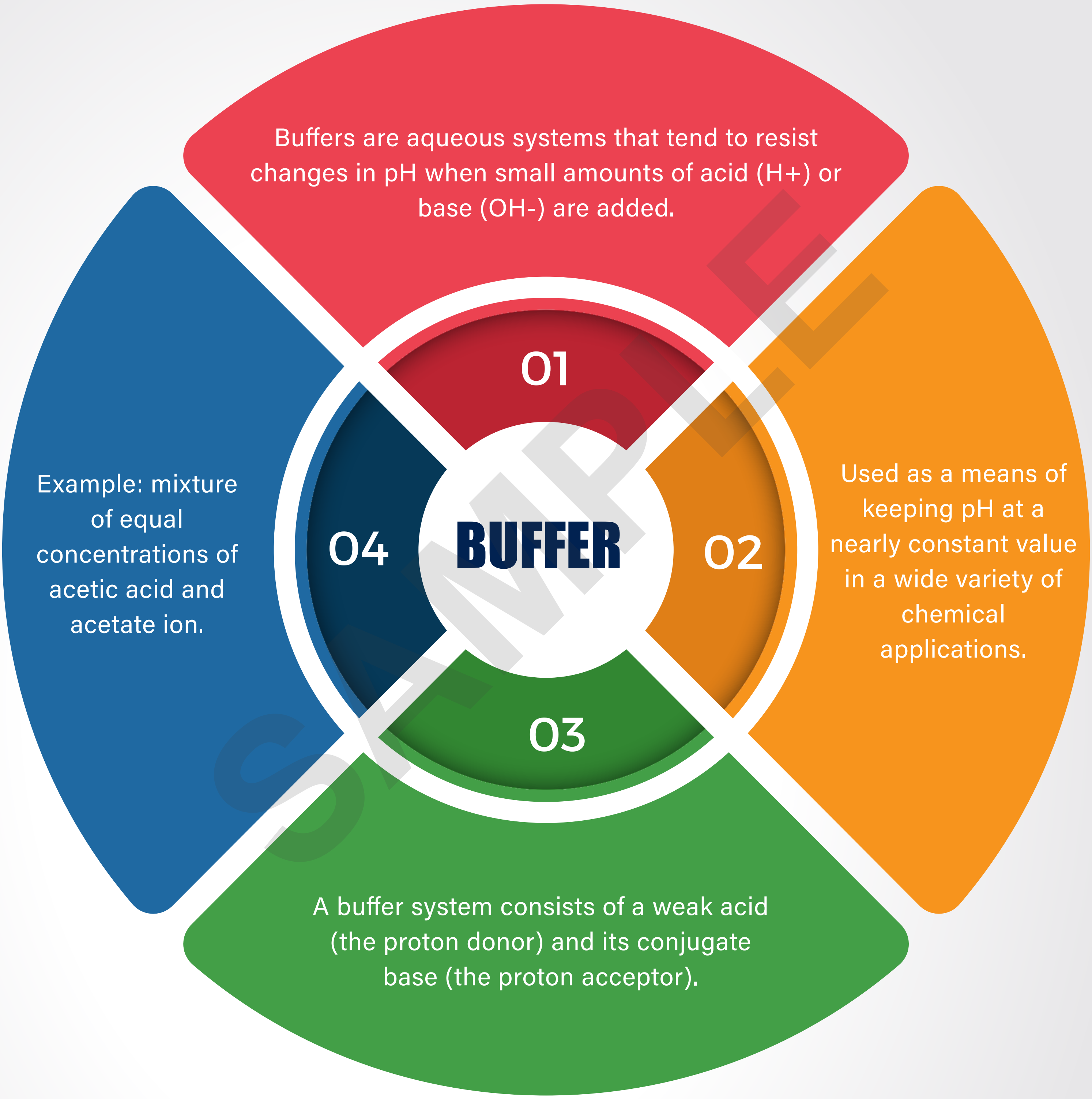
STRUCTURE OF AN ATOM


Buffers are aqueous systems that tend to resist changes in pH when small amounts of acid (H+) or base (OH-) are added.
01
Used as a means of keeping pH at a nearly constant value in a wide variety of chemical applications.
02
A buffer system consists of a weak acid (the proton donor) and its conjugate base (the proton acceptor).
03
Example: mixture of equal concentrations of acetic acid and acetate ion.
04
BUFFER

HENDERSON HASSELBALCH EQUATION

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CARBOHYDRATES

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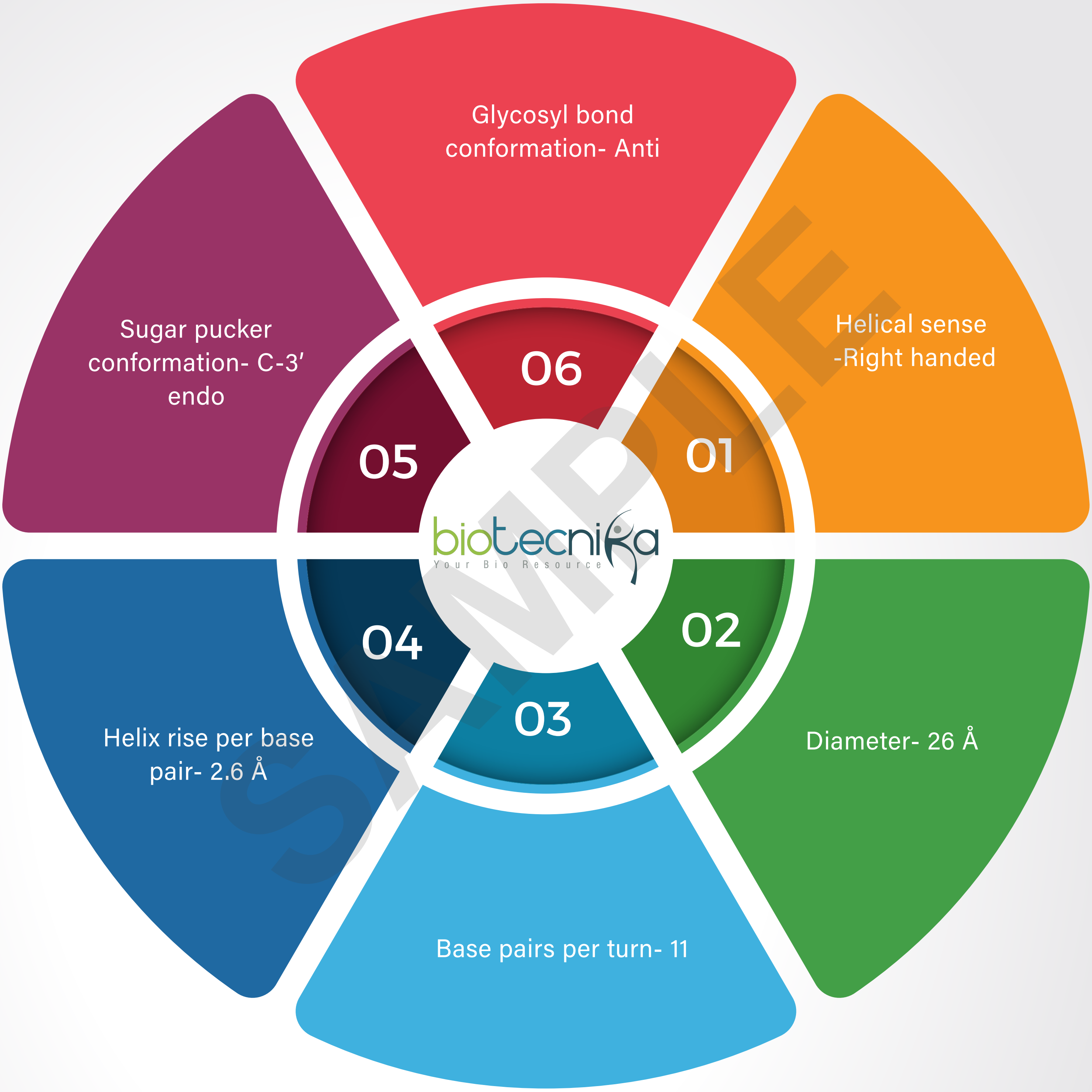
CONFORMATION OF NUCLEIC ACID-A FORM



CONFORMATION OF NUCLEIC ACID -B FORM

CONFORMATION OF NUCLEIC ACID -Z FORM


AMINO ACIDS
01
Principle building blocks of proteins.
02
Possess a structure which includes a central carbon atom called Cα, linked to an amino group, a carboxylic acid group, a hydrogen atom, and a distinctive R group (side chain).
03
There are roughly 300 types of amino acids in nature, only 20 of which serve as building blocks of proteins.
04
Amino acids classified into five main classes based on the properties of their R groups (Nonpolar, aliphatic; Aromatic; Polar, uncharged; Positively charged, Negative-ly charged R groups)
05
Nonpolar, aliphatic R groups are Glycine, Alanine, Proline, Valine, Leucine, Isoleucine, Methionine.
06
Aromatic R groups are Phenylalanine, Tyrosine, Tryptophan
07
Polar, uncharged R groups are Serine, Threonine, Cysteine, Asparagine, Glutamine.
08
Positively charged R groups are Lysine, Arginine, Histidine, Negatively charged R groups are Aspartate, Glutamate.
09
α-amino acids are chiral; Only l amino acids are constituents of proteins.
10
Average molecular weight of an amino acid is 110 daltons.

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PROTEIN SECONDARY STRUCTURE- α HELIX

01 The simplest arrangement the polypeptide chain could assume with its rigid peptide bonds (but other single bonds free to rotate) is a helical structure, also called the α helix.

02 The polypeptide backbone is tightly wound around an imaginary axis drawn longitudinally through the middle of the helix.

03 The R groups of the amino acid residues protrude outward from the helical backbone.

04 The repeating unit is a single turn of the helix, which extends about 5.4 Å along the long axis.

05 The amino acid residues in an α helix have conformations with $\Psi = -45°$ to $-50°$ and $\varphi = -60$
=

06 Each helical turn includes 3.6 amino acid residues.

07 The helical twist of the α helix found in all proteins is right-handed.

08 About one-fourth of all amino acid residues in polypeptides are found in α helices.

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