



Centurion
UNIVERSITY
Shaping Lives...
Empowering Communities...

TOPIC-1: IMPORTANCE OF BIOCHEMISTRY



Centurion
UNIVERSITY

*Shaping Lives...
Empowering Communities...*

1.1 Biochemistry deals with:

1. Bio-molecules
2. Metabolic Pathways
3. Mechanisms of Enzyme Action
4. Cell signalling
5. Expression and transmission of genetic information



Centurion
UNIVERSITY

Shaping Lives...
Empowering Communities...

1.2 Landmarks in Biochemistry

- ❖ The 19th century: the cell theory by **Schleiden and Schwann**, **Mendel's study of inheritance** and **Darwin's theory of evolution**.
- ❖ 1828: when total synthesis of urea from lead cyanate and ammonia was achieved by **Wohler**
- ❖ **Louis Pasteur**, during 1857, did a great deal of work on fermentations and pointed out the central importance of enzymes in this process.
- ❖ 1897: **Edward Buchner** extracted enzyme from yeast cells in crude form which could ferment a sugar molecule into alcohol.
- ❖ **1903: Neuberg** introduced the term biochemistry



Centurion
UNIVERSITY

*Shaping Lives...
Empowering Communities...*

...Landmarks in Biochemistry

- ❖ 1926: James Sumner established the protein nature of enzyme.
- ❖ The first metabolic pathway elucidated was the glycolytic pathway during the first half of the 20th century by Embden and Meyerhof. Otto Warburg, Cori and Parnas
- ❖ Krebs established the citric acid and urea cycles during 1930-40.
- ❖ In 1940, Lipmann described the central role of ATP in biological systems.
- ❖ The biochemistry of nucleic acids entered into a phase of exponential growth after the establishment of the structure of DNA in 1953 by Watson and Crick followed by the discovery of DNA polymerase by Kornberg in 1956.