Common Framework of CBCS for Colleges in Andhra Pradesh  
(A.P. State of Council of Higher Education)  
**B.Sc., BIOCHEMISTRY**  
Course Structure, Scheme of Instruction and Examination, 2015  
Semester Pattern  

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SEMESTER-II

Theory: BCT-201 Nucleic acids and Biochemical Techniques

Unit-I : Nucleic Acids 12 hours
Nature of nucleic acids. Structure of purines and pyrimidines, nucleosides, nucleotides. Stability and formation of phosphodiester linkages. Effect of acids, alkali and nucleases on DNA and RNA. Structure of Nucleic acids- Watson-Crick DNA double helix structure, introduction to circular DNA, super coiling, helix to random coil transition, denaturation of nucleic acids- hyperchromic effect, Tm-values and their significance. Reassociation kinetics, cot curves and their significance. Types of RNA and DNA.

Unit-II: Porphyrins 9 hours
Structure of porphyrins; Protoporphyrin, porphobilinogen properties Identification of Porphyrins. Structure of metalloporphyrins – Heme, cytochromes and chlorophylls.

Unit-III: Biochemical Techniques I 15 hours

Unit-IV: Biochemical Techniques II 12 hours

Unit-V: Techniques employed in metabolic studies 12 hours
Broad outlines of Intermediary metabolism, methods of investigation, Intermediary metabolism in vivo studies such as analysis of excretion, Respiratory exchange, Removal of organs and perfusion studies, in vitro studies such as tissue slice techniques; Homogenates and purified enzyme systems; isotope tracer studies, use of inhibitors and antimetabolites.

Practical BCP- 201 : Nucleic acids and Biochemical Techniques 45 hrs
List of Experiments: (3 periods/week)

1. Isolation of RNA and DNA from tissue/culture.
2. Qualitative Identification of DNA,RNA and Nitrogen Bases
3. Isolation of egg albumin from egg white.
4. Isolation of cholesterol from egg yolk.
5. Isolation of starch from potatoes.
6. Isolation of casein from milk.
7. Separation of amino acids by paper chromatography.
8. Determination of exchange capacity of resin by titrimetry.
10. Separation of plant pigments by TLC.
MODEL QUESTION PAPER FOR END SEMESTER EXAM
B.Sc Degree Course
(Semester-II) Nucleic acids and Biochemical techniques

B.Sc Biochemistry

Timer: 3hrs  Max marks: 75

Section-A  (5X5=25 marks)
Attempt any Five of the following

1. Nucleotides.
2. r-RNA.
4. Differential centrifugation
5. Principle in fluorimetry.
6. Tissue slice technique.
7. Applications of agarose gel electrophoresis.
8. Isotope tracer studies.

Section-B  (10X5=50 marks)
Attempt all the following questions

9. What are the types of RNA and their role.
   (OR)
10. Explain the double helical structure of DNA.
11. Describe structure and properties of porphyrins.
    (OR)
12. Explain the properties of porphyrins and their identification methods.
13. Describe the principle and applications of density gradient centrifugation.
    (OR)
14. Explain the principle and applications related to ion exchange chromatography
15. Explain the construction of spectrophotometer and its applications.
    (OR)
16. What are the uses of Radio isotopes in medicine and biology.
17. How metabolic pathways are sequenced
    (OR)
18. How to prepare the cell homogenate and purify the enzyme.