

**HINDI MAHAVIDYALAYA**  
(AUTONOMOUS & NAAC RE-ACCREDITED)  
(Affiliated to Osmania University)  
Nallakunta, Hyderabad



**B.Sc. I YEAR SEMESTER I & II**  
**DEPARTMENT OF BIOCHEMISTRY**  
**(2020-2021)**



# HINDI MAHAVIDYALAYA

(AUTONOMOUS & NAAC RE-ACCREDITED)

BOARD OF STUDIES

DEPARTMENT OF BIOCHEMISTRY

## Chairperson

Ms. G. Lahari

Head- Department of Biochemistry

Hindi Mahavidyalaya

Nallakunta, Hyderabad

*Lahari*

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Prof. Ch. Venkata Ramana Devi

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Department of Biochemistry

Osmania University, Hyderabad

## Members of BOS

1. Dr. Manjula

Asst. Professor

Department of Biochemistry,

Osmania University, Hyderabad

2. Dr. Sai Padma

Head and Asst. Professor

Department of Biochemistry,

Bhavan's Vivekananda College of Science Humanities and Commerce,  
Hyderabad

3. Dr. Ravi Kiran Suripeddi

Head- Department of Biochemistry

Aurora Degree & PG College, Chikkadpally, Hyderabad

Chairperson

University Nominee

Department of Biochemistry  
University College of Science  
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1. Dr. Manjula, Ph.D.  
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2.

2.

*A. Sai Padma*

Principal

PRINCIPAL  
HINDI MAHA VIDYALAYA  
(AUTONOMOUS)  
Arts, Commerce & Science  
Nallakunta, Hyderabad-44.

Head, Dept. of Bio-Chemistry  
Bhavan's Vivekananda College  
Sainikpuri, Secunderabad-500 094

*S. Ravi Kiran S*

Dr. Ravi Kiran S  
Professor & Head  
Department of Biochemistry  
Aurora Degree & PG College

*Lahari*  
Department of Biochemistry  
Hindi Mahavidyalaya  
AUTONOMOUS & NAAC REACCREDITED  
Nallakunta, Hyderabad-44

**HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD  
(AUTONOMOUS)**

**COMPOSITION OF THE BOARD OF STUDIES IN AN AUTONOMOUS COLLEGE**

- 1. Composition: Department of Biochemistry**
  1. Head of the Department concerned (Chairman)  
Ms. G. LAHARI, Head-Department of Biochemistry
  2. The entire faculty of each specialization
    1. Ms.G. Lahari
    2. Mrs. G Ranganayaki
  3. One expert to be nominated by the Vice Chancellor from a panel of six recommended by the College Principal
    1. Dr. Ch. Venkataramana devi, Chairperson, BOS, Dept. of Biochemistry, Osmania University, Hyderabad.
  4. Two experts on the subject from outside the college to be nominated by the Academic Council.
    1. Dr. Manjula , Assistant professor, Biochemistry Department, Osmania University, Hyderabad.
    2. Dr. Sai padma , Head and Assistant professor of Biochemistry Department, Bhavan's Vivekananda college, Hyderabad
    3. Dr. S. Ravi Kiran , Head of the Biochemistry Department, Aurora degree and PG College
    4. One postgraduate meritorious alumnus to be nominated by the Principal. The Chairman, Board of Studies, may with the approval of the Principal of the College.

(i) Sai Vaishnavi-M.Sc. Biochemistry

- (a) Experts from outside the College whenever special courses of studies are to be formulated. -To be nominated.
- (b) Other members of staff of the same faculty.



**HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD  
(AUTONOMOUS)  
DEPARTMENT OF BIOCHEMISTRY  
AGENDA OF THE MEETING**

- 4.1 Welcome address by the chair.
- 4.2 Previous Meeting Details.
- 4.3 Details of choice based credit system.
- 4.4 Discussion and Distribution of Common Core Syllabus for all the Semesters (I and II)
- 4.5 Marks allotted for internal and end semester exams.
- 4.6 Discussion on Pattern and model paper of Semester Exam and internal exam for all the Semesters (I and II)
- 4.7 Discussion on Practical exam model paper for all the Semesters (I and II)
- 4.8 Panel of Examiners
- 4.9 Any other matter
- 4.10 Vote of thanks



**HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD**  
**(AUTONOMOUS)**  
**DEPARTMENT OF BIOCHEMISTRY**  
**BOARD OF STUDIES**  
**Academic Year – 2020-2021**  
**Minutes of BOS Meeting**

**BOS meeting of the Department of Biochemistry was held on 05<sup>th</sup> March 2021**

**The following members were present**

Dr. Ch. Venkata Ramana Devi	-	University Nominee
Ms. G Lahari	-	Chair person
Dr. Manjula	-	Member of BOS
Dr. Sai Padma	-	Member of BOS
Dr. Ravi Kiran	-	Member of BOS

**4.1 Welcome address by the chair**

The chair welcomed the University Nominee, Chairperson BOS, O.U. Department of Biochemistry and Members of B.O.S.

**4.2 Previous Meeting details**

The CBCS system has been introduced by Osmania University from 2016-17. The theory and practical syllabus of I, II & III years of B.Sc., question paper pattern for theory and practical, internal assessment pattern, practical examination scheme and panel of examiners were discussed and approved by all the BOS Members in previous BOS meeting.

**4.3 Details of choice based credit system.**

Members were informed that TSCHE has referred that from the academic year 2016-17 autonomous institutions have to follow CBCS i.e. From the Academic Year 2016-17 Osmania University has instructed all the Degree colleges including Autonomous Degree colleges to follow CBCS under which after passing the exam student will get the Grade in the Final Result.

**4.4 Discussion and Distribution of Common Core Syllabus for semesters I and II.**

- i. Members were informed by the chair that Department of Biochemistry, Hindi Mahavidyalaya is following common core syllabus prescribed by Osmania University with few changes for B.Sc. I YEAR in I and II semesters.

- iii. Following are the changes in the syllabus of Semester - II
- iv. **Unit – 3 Spectrophotometric and electrophoresis Techniques**
- v. 6. Principles of electrophoresis and applications
- vi. 7. Native , SDS – PAGE, Agarose gel electrophoresis
- vii. **Unit – 4 Chromatography and Centrifugation Techniques**
- viii. 7. Principles of Centrifugation Techniques , types and applications of
- ix. Centrifugation
- x. **Practicals :**
- xi. RNA estimation by Orcinol
- xii. Estimation of DNA by DPA
- xiii.
- xiv. Syllabus copy for both the semesters is enclosed.
- xv. Syllabus was approved by the Members of BOS.

#### 4.5 Marks allotted for Internal and end Semester exams.

1. Internal assessment is of 30 marks in which 15 marks are for online test, where students have to answer 30 MCQs in 15 minutes. Each question carries  $\frac{1}{2}$  mark. In each Semester two online tests of 15 Marks will be conducted and an average of both the tests will be added in the marks of theory exam.
2. Theory Question paper is of 70 marks.
3. Total allotted marks are 100 for each theory paper (I & II).
4. Internal assessment is of 15 marks for AECC. One online internal assessment of 10 Marks will be conducted and added in the marks of Theory exam.
5. Theory Question paper for AECC is of 35 marks.
6. Total allotted marks are 50 for each AECC.

The distribution of marks was approved by the Members of BOS.

#### 4.6 Discussion on Pattern and Model Paper of Semester exam and Model Paper of Internal Exam

1. It was informed by the department that in each Semester Two Online tests will be conducted for DSC of 20 marks. The internal assessment will have three sections.
  - Section – A 20 multiple choice questions each carries 1 marks (20 x 1 =20M),
  - Section – B Assignment – 5 Marks
  - Section – C Seminar – 5 Marks
 Average marks of these two online tests will be taken.
2. It was informed by the department that in each Semester one Online test will be conducted for AECC of 10 marks. The internal assessment will have two sections
  - Section – A 10 multiple choice questions each carries 1 marks (10 x 1 =10M),
  - Section – B Assignment/Seminar – 5 Marks
3. Semester exam will be conducted as per the Almanac which will be provided by the exam branch. Internal exam duration will be 15 Min and Semester exam duration will be of 2  $\frac{1}{2}$  hrs.
4. Model Question paper for Semester I and Semester II was discussed. Theory paper for each Semester will have 2 sections.
  - i) Section A contains 8 short Questions. The student has to answer six questions. Each Question carries 3 Marks (6X3=18 marks)



- ii) Section B contains 4 Essay type Questions with internal choice.  
Each Question carries 13 Marks (4X13=52 marks)
5. The Model Question paper of AECC for Semester I and Semester II was discussed. Theory paper for each AECC will have 2 sections.
- i) Section A contains 4 short Questions. The student has to answer THREE questions. Each Question carries 5 Marks (3X5=15 Marks)
- ii) Section B contains 2 Essay type Questions with internal choice. Each Question carries 10 Marks (2X10=20 Marks)

- Pattern of Model Theory Question Papers for DSC and AECC Paper I and Paper II are enclosed.

Pattern of Model Theory Question Papers for DSC and AECC was approved by Members of BOS

#### 4.7 Discussion on Practical Exam Model paper.

- It is decided that the practical examinations held for B.Sc first years (Semester I & II) from the academic year 2020-21 onwards will have the pattern of 25 marks scheme and the credits will remain the same i.e. 1 credit. The duration of the exam will be 3 hours.
- Pattern of Model Practical Question Papers for Paper I and Paper II are enclosed.
- Pattern of Model Practical Question Papers was approved by Members of BOS

#### 4.8 Panel of Examiners

The panel of examiners was approved by the members.

- List is enclosed

#### 4.9 Any other matter.

#### 5.0 Vote of Thanks

Meeting concluded with the Vote of Thanks by Ms.G. Lahari.

Chairperson  
Principal

University Nominee

HEAD

Department of Biochemistry  
University College of Science  
Osmania University

Members

Dr. Bhadrachari, M.D.

1. Dr. Bhadrachari, M.D.  
Chairman  
Board of Studies, Osmania University  
Hyderabad.

2. A. Saijad

3. Head, Dept. of Bio-Chemistry  
Bhavan's Vivekananda College  
Sainikpuri, Secunderabad-500 094

4. S. Ravi Kiran S  
Dr. Ravi Kiran S  
Professor & Head  
Department of Biochemistry  
Aurora Degree & PG College



(AUTONOMOUS)

Affiliated to Osmania University, Nallakunta, Hyderabad-44

**CBCS STRUCTURE FOR 2020-2021 BATCH****B.Sc.-BIO CHEMISTRY, MICROBIOLOGY, CHEMISTRY****ADEMIC YEAR 2020-2021**

FIRST YEAR SEMESTER – I					Semester End Exam		Continuous Internal Evaluation		Total	Practical 3 hours
Code	Course Title	Course Type	HPW	Credits	Duration in Hours	Marks	Exam Duration	Marks		
BS101	Environmental Studies	AECC-1	2	2	2	35	20 min.	15	50	
BS102	English-I	CC-1A	4	4	3	70	20 min.	30	100	
BS103	Second Language-I	CC-1A	4	4	3	70	20 min.	30	100	
BS104	Bio-Chemistry- I	DSC-1A	4T+2P=6	4+1=5	3	70	25 min	30	100	25
BS105	General Microbiology-I	DSC-1A	4T+2P=6	4+1=5	3	70	20 min	30	100	25
BS106	Chemistry-I	DSC-1A	4T+2P=6	4+1=5	2 1/2	70	25 min	30	100	25
			28	25		385		165	625	

FIRST YEAR SEMESTER – II					Semester End Exam		Continuous Internal Evaluation		Total	Practical 3 hours
Code	Course Title	Course Type	HPW	Credits	Duration in Hours	Marks	Exam Duration	Marks		
BS201	Basic Computer Skills	AECC-2	2	2	2	35	20 min.	15	50	
BS202	English-II	CC-1B	4	4	3	70	20 min.	30	100	
BS203	Second Language-II	CC-2B	4	4	3	70	20 min.	30	100	
BS204	Bio-Chemistry - II	DSC-1B	4T+2P=6	4+1=5	3	70	20 min	30	100	25
BS205	General Microbiology-II	DSC-2B	4T+2P=6	4+1=5	3	70	20 min	30	100	25
BS206	Chemistry-II	DSC-3B	4T+2P=6	4+1=5	2 1/2	70	25 min	30	100	25
			28	25		385		165	625	

Chairperson

*Dr. S. S. Srinivasulu*

University Nominee

**HEAD**

**Department of Biochemistry**  
**University College of Science**  
**Osmania University**

Members

Dr. S. S. Srinivasulu

*Dr. S. S. Srinivasulu*

Board of Studies  
 Osmania University  
 Hyderabad.

Head, Dept. of Bio-Chemistry & Microbiology  
 Bhavan's Vivekananda College  
 Sainikpuri, Secunderabad-500 094  
 Aurora Degree & PG College

HINDI MAHARAJA

PRINCIPAL

Dr. S. S. Srinivasulu

Dr. S. S. Srinivasulu

Dr. S. S. Srinivasulu



# HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD (AUTONOMOUS)

B.Sc. I Year Semester – I  
Biochemistry Paper I – Chemistry of Biomolecules

Code: BS104  
Instruction  
Theory Classes  
Credit for Theory  
Credit for Practical

DSC

4 Hrs/Week

4

1

**Learning Outcome:** Students will learn about different biomolecules and their importance.

Unit Name	TOPICS	HOURS PER UNIT
1. Introduction	1. Scope of Biochemistry 2. Water as biological solvent 3. Weak acids and bases 4. pH and concept of Buffers 5. Biological buffers and their physiological importance 6. Henderson- Hasselbalch equation (Simple numerical problems) 7. Concept of Stereochemistry with reference to Carbohydrates and Amino acids.	15 hours
2. Amino acids & proteins	1. Classification, structure, stereochemistry and chemical reactions of amino acids. 2. Titration curve of glycine & pk values. 3. Essential, nonessential amino acids and non-protein amino acids. 4. Peptide bond- Nature and conformation, Naturally occurring peptides –Glutathione and Brain peptides (Enkephalin) 5. Outlines of protein classification, structural organization of proteins: primary, secondary, tertiary and quaternary structures (ex, hemoglobin & myoglobin) 6. General properties of proteins, denaturation and renaturation of proteins. 7. Determination of amino acid composition of proteins.	15 hours
3. Carbohydrates	1. Classification of carbohydrates 2. Monosaccharides : Structures, Fisher and Haworth projections 3. Reactions of monosaccharides, Mutarotation 4. Amino sugars and Glycosides 5. Disaccharides, Oligosaccharides and Polysaccharides 6. Storage and Structural polysaccharides 7. Glycosaminoglycans and Bacterial cell wall polysaccharides	15 hours



4. Lipids	1. Classification of lipids, Reactions & properties of lipids 2. Saturated, Unsaturated and Essential fatty acids 3. Structure and functions of Neutral fats, waxes, phospholipids, sphingolipids, 4. Structure and functions of cholesterol and glycolipids. 5. Prostaglandins and lipoproteins. 6. Bio membranes, behavior of amphipathic lipids in water, formation of micelles, bilayers, vesicles, Liposomes 7. Membrane composition and fluid mosaic model.	15 hours
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#### References:

1. Lehninger's Principles of Biochemistry – Nelson.D.L. and Cox.M.M., Freeman & Co.
2. Biochemistry – Berg.J.M., Tymoczko.J.L. and Stryer.L., Freeman & Co.
3. Biochemistry – Voet.D and Voet., J.G., John Wiley & Sons .
4. Textbook of Biochemistry – West.E.S., Todd.W.R, Mason.H.S..and. Bruggen, J.T.V., Oxford & IBH Publishers.
5. Outlines of Biochemistry – Conn.E.E., Stumpf.P.K., Bruening, G and Doi.R.H., John Wiley & Sons .
6. Harper's Illustrated Biochemistry – Murray, R.K., Granner.D.K. & Rodwell,V.W., McGraw-Hill
7. Biochemistry-Lippincott's Illustrated Reviews. Champe, P.C. and Harvey, R. A. Lippincott
7. Fundamentals of Biochemistry –Jain, J.L., Jain, S., Jain, N. S. Chand & Co.
8. Biochemistry – Satyanarayana. U and Chakrapani. U, Books & Allied Pvt. Ltd.

Chairperson

University Nominee

Dr. Members

Principal

**HEAD**  
**Department of Biochemistry**  
**University College of Science**  
**Osmania University**

Board of Studies  
Osmania University  
Hyderabad.

**PRINCIPAL**  
**HINDI MAHA VIDYALAYA**  
**(AUTONOMOUS)**  
**Arts, Commerce & Science**  
**Nallakunta, Hyderabad-44.**

*Dehavi*  
**Department of Biochemistry**  
**Hindi Mahavidyalaya**  
**(AUTONOMOUS & NAAC REACCREDITED)**  
**Nallakunta, Hyderabad-44.**

2. *A. Lai*

**Head, Dept. of Bio-Chemistry**  
**Bhavan's Vivekananda College**  
**Sainikpuri, Secunderabad-500 094**

3.

*S. Ravi Kiran S*  
**Dr. Ravi Kiran S**  
**Professor & Head**  
**Department of Biochemistry**  
**Aurora Degree & PG College**



# HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD (AUTONOMOUS)

B.Sc. I Year Semester – I  
Biochemistry Paper I

Practical Classes  
Credit for Practical

2 Hrs/Week  
1

## Practicals: Qualitative Analysis of Biomolecules

1. Laboratory general safety procedures
2. Preparation of standard solutions (Molar, Normal and percent solutions)
3. Determination of pKa values of amino acids by titration (Glycine)
4. Preparation of buffers (Acetate and Phosphate buffers)
5. Qualitative identification of Carbohydrates
6. Qualitative identification of Amino acids
7. Qualitative identification of Lipids

## References

1. Experimental Biochemistry-A student companion-Beedu Sashidhar Rao and VijayDeshpande.
2. Laboratory Manual in Biochemistry- Jayaraman, J. Wiley Easter

Chairperson

University Nominee

HEAD

Department of Biochemistry  
University College of Science  
Osmania University

*Jahani*  
Department of Biochemistry  
Hindi Mahavidyalaya  
Nallakunta, Hyderabad-44  
AUTONOMOUS & NAAC REACCREDITED

*S. Ravi Kiran*  
Dr. Ravi Kiran S  
Professor & Head  
Department of Biochemistry  
Aurora Degree & PG College

Dr. Bhargava

Ph.D.

Members

1. *[Signature]*  
Osmania University  
Hyderabad.

2. *A. Lai Padu*

Head, Dept. of Bio-Chemistry  
Chavan's Vivekananda College  
Srinikpuri, Secunderabad-500 094

*[Signature]*  
PRINCIPAL  
HINDI MAHA VIDYALAYA  
(AUTONOMOUS)  
Arts, Commerce & Sci  
Nallakunta, Hyderabad



HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD  
(AUTONOMOUS)

B.Sc Biochemistry- 1<sup>st</sup> Year  
Semesters – I - Paper – I  
Theory Model Question Paper

Time: 3 hrs

Max. Marks: 70

SECTION A

I Write short notes on any Six of the following:

6 X 3 = 18 Marks

1. A question from Unit I
2. A question from Unit I
3. A question from Unit II
4. A question from Unit II
5. A question from Unit III
6. A question from Unit III
7. A question from Unit IV
8. A question from Unit IV

SECTION B

II Answer all the Questions.

4 X 13 = 52 Marks

- 9 (a) A question from Unit I  
( OR )  
(b) A question from Unit I
- 10 (a) A question from Unit II  
( OR )  
(b) A question from Unit II .
- 11 (a) A question from Unit III.  
( OR )  
(b) A question from Unit III.
- 12 (a) A question from Unit IV  
( OR )  
(b) A question from Unit IV.

Chairperson

University Nominee

HEAD

Department of Biochemistry  
University College of Science  
Osmania University

*Jahani*  
Department of Biochemistry  
Hindi Mahavidyalaya  
Nallakunta, Hyderabad-44  
AUTONOMOUS & NAAC PEACOPEDITE

Dr. Bhanoori M. J., Ph.D.

Members  
Board of Studies, Nutrition  
Osmania University  
Hyderabad.

*y. lla*  
PRINCIPAL  
HINDI MAHA VIDYALAYA  
(AUTONOMOUS),  
Arts, Commerce & Science  
Nallakunta, Hyderabad-44.

2. *A. Sai Jada*  
Head, Dept. of Bio-Chemistry  
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Sainikpuri, Secunderabad-500 092

3. *S. Ravi Kiran S*  
Dr. Ravi Kiran S  
Professor & Head  
Department of Biochemistry



HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD  
(AUTONOMOUS)

B.Sc Biochemistry- 1<sup>st</sup> Year  
Semester - I - Paper - I  
Practical Model Question Paper

Max. Marks: 25

Time: 3 hrs

- I. Principle writing
- II. Minor experiment
- III. Major experiment
- IV. Viva & Record

(5 Marks)

(5 Marks)

(10 Marks)

(5 Marks)

Chairperson

University Nominee

HEAD

Department of Biochemistry  
University College of Science  
Osmania University

Dr. Bhonchar

Chair

Members

Board of Studies  
Osmania University  
Hyderabad.

PRINCIPAL

HINDI MAHA VIDYALA  
(AUTONOMOUS)

Arts, Commerce & Science  
Nallakunta, Hyderabad.

2. A. Sai

Head, Dept. of Bio-Chemistry  
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S. Ravi Kiran S

Professor & Head  
Department of Biochemistry  
Aurora Degree & PG College



**HINDI MAHAVIDYALAYA,  
NALLAKUNTA, HYDERABAD  
(AUTONOMOUS)  
B.Sc. I Year Semester – II**

**Biochemistry Paper II - Chemistry of Nucleic Acids and Biochemical Techniques**

**Code: BS204**

**Instruction**

**Theory Classes**

**Credit for Theory**

**Credit for Practical**

**DSC**

**4 Hrs/Week**

**4**

**1**

**Learning Outcome:** Students will learn about Nucleic acids and different biochemical techniques, their usage and handling.

Unit Name	TOPICS	HOURS PER UNIT
<b>1. Composition of Nucleic acids</b>	1. Nature (functions) of nucleic acids. 2. Structure of purines and pyrimidines. 3. Nucleosides and Nucleotides 4. DNA & RNA. 5. Stability and formation of phosphodiester linkages 6. Effect of acids, alkali and nucleases and phosphodiester linkages 7. Photochemical and Spectral characteristics of Nucleic acid	<b>15 hours</b>
<b>2. Structure of nucleic acids</b>	1. Watson & Crick DNA double helix structure, types of DNA 2. Introduction to circular DNA, supercoiling, helix to random coil transition, 3. Denaturation of nucleic acids. 4. Hyperchromic effect 5. T <sub>m</sub> values and their significance. 6. Reassociation kinetics, cot curves and their significance. 7. Different types of RNA and their biological functions.	<b>15 hours</b>
<b>3. Spectrophotometric, and Electrophoresis Techniques</b>	1. Colorimetry and spectrophotometry. 2. Beer-Lambert's law and its limitations. 3. UV and Visible spectra 4. Molar extinction coefficient. 5. Principle of fluorimetry 6. Principles of electrophoresis and applications 7. Native, SDS-PAGE, Agarose gel electrophoresis	<b>15 hours</b>



<b>4.Chromatography and Centrifugation techniques</b>	1. Introduction and principles of chromatographic techniques 2. Paper chromatography and applications 3. Thin layer chromatography and applications 4. Gel filtration (molecular sieve) chromatography 5. Ion exchange Chromatography 6. Affinity chromatography 7.Principle of Centrifugation techniques , Types of centrifugation and their applications	<b>15 hours</b>
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**References:**

1. Biochemistry – Voet.D and Voet., J.G., John Wiley & Sons .
2. Textbook of Biochemistry – West.E.S., Todd.W.R, Mason.H.S..and. Bruggen, J.T.V., Oxford & IBH Publishers.
3. Outlines of Biochemistry – Conn.E.E., Stumpf.P.K., Bruening, G and Doi.R.H., John Wiley & Sons .
4. Principles and Techniques of Practical Biochemistry- Wilson, K. and Walker, J. Cambridge Press.
5. The Tools of Biochemistry- Cooper, T. G. John Wiley & Sons Press.
6. Physical Biochemistry- Friefelder, D. W.H. Freeman Press.
7. Analytical Biochemistry – Holme.D.J. and Peck.H., Longman.
8. Biophysical Chemistry: Principle and techniques- Upadhyay A, Upadhyay K and Nath. N. Himalaya Publishing House.
9. Experimental Biochemistry- Clark Jr. J.M and Switzer, R. L. Freeman & Co..

**Chairperson**

**University Nominee**

**Dr. D.**

**Ph.D.**

**Members**

Board of Studies, Unit II  
Osmania University  
Hyderabad.

**PRINCIPAL**

**HINDI MAHA VIDYALAYA  
(AUTONOMOUS)  
Arts, Commerce &  
Nallakunta, Hyderabad**

*Signature*

**HEAD  
Department of Biochemistry  
University College of Science  
Osmania University**

2. *Signature*

**Head, Dept. of Bio-Chemistry  
Vivekananda College  
V.V. Nagar, Secunderabad-500 094**

*Signature*  
**Dr. Ravi Kiran S  
Professor & Head  
Department of Biochemistry  
Aurora Degree & PG College**

**Department of Biochemistry  
Hindi Mahavidyalaya  
Nallakunta, Hyderabad-44**



**HINDI MAHAVIDYALAYA,  
NALLAKUNTA, HYDERABAD  
(AUTONOMOUS)**

**B.Sc. I Year Semester – II  
Biochemistry Paper II**

**Practical Classes  
Credit for Practical**

**3 Hrs/Week  
1**

**Practicals: Quantitative Analysis of Biomolecules**

1. Amino acid Estimation by Ninhydrin method
2. Protein Estimation by Biuret
3. RNA estimation by Orcinol
4. Estimation of DNA by DPA
5. Estimation of Total Reducing Sugars by Dinitrosalicylate method
6. Estimation of Keto sugar by Roe's resorcinol Method
7. Paper chromatography

**References :**

1. Experimental Biochemistry-A student companion-Beedu Sashidhar Rao and Vijay Deshpande.
2. Laboratory Manual in Biochemistry- Jayaraman, J. Wiley Eastern

**Chairperson**

**University Nominee  
HEAD**

**Department of Biochemistry  
University College of Science  
Osmania University**

**Board of Studies  
Members**

1. Hyderabad

**PRINCIPAL**

**HINDI MAHA VIDYALAYA  
(AUTONOMOUS)**

2. Arts, Commerce & Science  
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**Head, Dept. of Bio-Chemistry  
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**Dr. Ravi Kiran S  
Professor & Head  
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HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD  
(AUTONOMOUS)

B.Sc Biochemistry- 1<sup>st</sup> Year  
Semesters – II - Paper – II  
Theory Model Question Paper

Time: 3 hrs

Max. Marks: 70

SECTION A

I Write short notes on any Six of the following:

6 X 3 = 18 Marks

1. A question from Unit I
2. A question from Unit I
3. A question from Unit II
4. A question from Unit II
5. A question from Unit III
6. A question from Unit III
7. A question from Unit IV
8. A question from Unit IV

SECTION B

II Answer all the Questions.

4 X 13 = 52 Marks

- 9 (a) A question from Unit I  
( OR )  
(b) A question from Unit I
- 10 (a) A question from Unit II  
( OR )  
(b) A question from Unit II .
- 11 (a) A question from Unit III.  
( OR )  
(b) A question from Unit III.
- 12 (a) A question from Unit IV  
( OR )  
(b) A question from Unit IV.

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University College of Science  
Osmania University

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Hyderabad.

2. Dr. ...

PRINCIPAL  
HINDI MAHA VIDYALAYA  
(AUTONOMOUS)  
Arts, Commerce &  
Nallakunta, Hyde

Dr. Ravi Kiran

Head, Dept. of Bio-Chemistry  
Bhavan's Vivekananda College  
Sainikpuri, Secunderabad-500 031



2.

3.

HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD  
(AUTONOMOUS)

B.Sc Biochemistry- 1<sup>st</sup> Year  
Semester – II - Paper – II  
Practical Model Question Paper

Time: 3 hrs

Max. Marks: 25

- I. Principle writing
- II. Minor experiment
- III. Major experiment
- IV. Viva & Record

(5 Marks)

(5 Marks)

(10 Marks)

(5 Marks)

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University College of Science  
Osmania University

Dr. Bhanoori M. R. Ph.D.

Members

Board of Studies  
Osmania University  
Hyderabad.

2.

A. Lai

Head, Dept. of Bio-Chemistry  
Bhavan's Vivekananda College  
Sainikpuri, Secunderabad-500 094

Dr. Ravi Kiran S  
Professor & Head

Department of Biochemistry  
Aurora Degree & PG College

PRINCIPAL  
HINDI MAHA VIDYALAYA  
(AUTONOMOUS)  
Arts, Commerce & Science  
Nallakunta, Hyderabad-44.



U.G. 1 year Semester-I - (B.Sc/B.A./B.Com) CBCS  
Environmental Studies

AECC-2 (2 hrs./week)

Credits - 2  
(30 hours)

(15 hrs.)

UNIT - I: Ecosystem, Biodiversity & Natural Resources

1. Definition, Scope & Importance of Environmental Studies.
2. Structure of Ecosystem - Abiotic & Biotic components Producers, Consumers, Decomposers, Food chains, Food webs, Ecological pyramids)
3. Function of an Ecosystem :Energy flow in the Ecosystem ( Single channel energy flow model )
4. Definition of Biodiversity , Genetic, Species & Ecosystem diversity , Hot-spots of Biodiversity, Threats to Biodiversity , Conservation of Biodiversity (In situ & Exsitu )
5. Renewable & Non - renewable resources, Brief account of Forest , Mineral & Energy (Solar Energy & Geothermal Energy) resources
6. Water Conservation , Rain water harvesting & Watershed management.

(15 hrs.)

UNIT - II: Environmental Pollution , Global Issues & Legislation

1. Causes, Effects & Control measures of Air Pollution, Water Pollution
2. Solid Waste Management
3. Global Warming & Ozone layer depletion.
4. Ill - effects of Fire- works
5. Disaster management - floods, earthquakes & cyclones
6. Environmental legislation :-  
(a) Wild life Protection Act (b) Forest Act (c) Water Act (d) Air Act
7. Human Rights
8. Women and Child welfare
9. Role of Information technology in environment and human health

(5 hours)

❖ Field Study:

- Pond Ecosystem
- Forest Ecosystem

REFERENCES:

- Environmental Studies - from crisis to cure - by R. Rajagopalan (Third edition) Oxford University Press.
- Text book of Environmental Studies for undergraduate courses (second edition) by Erach Bharucha
- A text book of Environmental Studies by Dr.D.K.Asthana and Dr. Meera Asthana

*Lehar*

*[Signature]*  
Dr. Bhanoo  
Chairman  
Board of Studies  
Osmania University

*[Signature]*  
Head, Dept. of Bio-Chemistry  
Bhavan's Vivekananda College  
Sainikpuri, Secunderabad-500 094

*[Signature]*  
Department  
University of  
Osmania



HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD  
(AUTONOMOUS)  
B.Sc Biochemistry- 1<sup>st</sup> Year

AECC-I

Environmental Studies

Credits - 2

THEORY MODEL PAPER

TIME: 1 1/2 HOURS

MAX MARKS: 35

SECTION-A

Answer the following in short:

3x5=15marks

1. Unit I
2. Unit I
3. Unit II
4. Unit II

SECTION-B

Answer the following essays:

2x10=20marks

1 (a) Unit-I OR

(b) Unit-I

2 (a) Unit - II OR

(b) Unit - II

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S. Dr. Ravi Kiran S  
Professor & Head  
Department of Biochemistry  
Aurora Degree & PG College

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Board of Studies  
Osmania University  
1 Hyderabad

PRINCIPAL

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2. A. Sai Reddy

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3.

HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD  
(AUTONOMOUS)  
B.Sc Biochemistry- 1<sup>st</sup> Year  
Basic Computer Skills

Credits - 2

AECC-2

THEORY MODEL PAPER

MAX MARKS: 35

TIME: 1 1/2 HOURS

SECTION-A

3x5=15marks

Answer the following in short:

1. Unit I
2. Unit I
3. Unit II
4. Unit II

SECTION-B

2x10=20marks

Answer the following essays:

5(a) Unit-I OR

(b) Unit-I

6(a) Unit - II OR

(b) Unit - II

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Osmania University

*Lehani*

Dr. Bhanoori M. Ph.D.

Chairman

Board Members, Institution  
Osmania University

1.

2.

Head, Dept. of Bio-Chemistry  
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Sainikpuri, Secunderabad-500 094

3.

*S. Ravi Kiran S*  
Dr. Ravi Kiran S  
Professor & Head  
Department of Biochemistry  
Aurora Degree & PG College

PRINCIPAL

HINDI MAHAVIDYA

(AUTONOMOUS)

Arts, Commerce & Science  
Nallakunta, Hyderabad



**HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD**  
(AUTONOMOUS)  
**B.Sc Biochemistry- 1<sup>st</sup> Year**  
**Panel of Examiners**

S.No.	Name and Designation	Mobile No.
1	Mrs. D.Rajini, Department of Biochemistry Bhavan's Vivekananda College of Science, Humanities & Commerce, Sainikpuri, Secunderabad	9703536015
2	Dr.S.Ravi Kiran, Department of Biochemistry Aurora Degree and Pg College, Chikkadpally, Hyderabad	9100000562
3	Ms.G.Bindu, Department of Biochemistry Aurora Degree and Pg College, Chikkadpally, Hyderabad	9100000504
4	Ms.C.Vanisree, Department of Biochemistry St.Pious X Degree and Pg college, Nacharam, Hyderabad	9703599392
5	Smt.Konda Sumana Yadagiri Assistant professor Department of Biochemistry Govt.City College, Nayapool, Hyderabad	9441201640
6	Dr.Ch.Vidya, Assistant professor Department of Biochemistry Govt.City College, Nayapool, Hyderabad	95333926170
7	Smt.R.Shyamala Chandra, Assistant professor Department of Biochemistry Kakatiya Govt. Degree College, Hanmakonda, Warangal	8121877262
8	Sri A.Chandrasekhar Assistant professor Department of Biochemistry Govt. Degree College for women Karimnagar,	9963871117

Chairperson

University Nominee

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**University College of Sciences**  
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Board Members  
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**PRINCIPAL**

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