

HINDI MAHAVIDYALAYA

(AUTONOMOUS & NAAC RE-ACCREDITED)

(Affiliated to Osmania University)

Nallakunta, Hyderabad-44



B.Sc. I YEAR SEMESTER I

DEPARTMENT OF BIOCHEMESTRY

2017-2018

HINDI MAHAVIDYALAYA

(AUTONOMOUS & NAAC RE-ACCREDITED)

(Affiliated to Osmania University)

Nallakunta, Hyderabad-44



B.Sc. I YEAR SEMESTER I

DEPARTMENT OF BIOCHEMESTRY

2017-2018

HINDIMAHAVIDYALAYA, NALLAKUNTA, HYDERABAD (AUTONOMOUS & NAAC RE-ACCREDITED)

COMPOSITION OF THE BOARD OF STUDIES IN AN AUTONOMOUS COLLEGE

I. Composition: Department of Biochemistry

1. Head of the Department concerned (Chairperson)

Smt. Srilatha Vemula– Department of Biochemistry

2. The entire faculty of each specialization.

Smt. Srilatha Vemula

3. One expert to be nominated by the vice-chancellor from a panel of five recommended by the college Principal.

i. Prof. Ch. Venkata Ramana Devi, Chairperson , BOS, Department of Biochemistry

4. Three experts in the subject from outside the college to be nominated by the Academic Council.

i. Ms. Ch. Vidya, Department of Biochemistry, City College, Osmania University, Hyd.

ii. Dr. S. Ravi Kiran, Head – Department of Biochemistry, Aurora Degree & PG College, Chikkadpally, Hyderabad.

iii. Smt. Konda Sumana Yadagiri, Assistant Professor, Head of the Department- biochemistry, Hyderabad appointed as a BOS member.

Experts from outside the College whenever special courses of studies are to be formulated- are nominated.

5. Other members of staff of the same faculty.

S. Ravi Kiran
Head of the Department of Biochemistry
Aurora Degree & PG College
Chikkadpally, Hyderabad-23.

K. Sumana
Assistant Professor
Department of Biochemistry
Indira Priyadarshini Government
Degree College for Women
Nampally, Hyderabad-500 001.

V. Srilatha
Chairperson
Department of Biochemistry
Hindi Mahavidyalaya
(Autonomous & NAAC RE-ACCREDITED)
Nallakunta, Hyderabad-44.

Ch. Venkata Ramana Devi
Chairperson
Department of Biochemistry
Hindi Mahavidyalaya
(Autonomous & NAAC RE-ACCREDITED)
Nallakunta, Hyderabad-44.

Members

Principal
PRINCIPAL

HINDI MAHAVIDYALAYA
Arts, Commerce & Science
(Autonomous)

**HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD
(AUTONOMOUS & NAAC RE-ACCREDITED)**

**BOARD OF STUDIES
DEPARTMENT OF BIOCHEMISTRY**

Chairperson

Smt. Srilatha Vemula
Head – Department of Biochemistry
Hindi Mahavidyalaya
Nallakunta, Hyderabad.

University Nominee

Prof. Ch. Venkata Ramana Devi
Chairperson – BOS
Department of Biochemistry
Osmania University, Hyderabad.

Members of BOS

1. Ms. Ch. Vidya,
Asst. Professor
Department of Biochemistry,
City College,
Hyderabad.

2. Dr. S. Ravi Kiran
Head – Department of Biochemistry
Aurora Degree & PG College,
Chikkadpally, Hyderabad

S. Ravi Kiran
Head Department of Bio-chemistry
AURORA'S DEGREE COLLEGE
Chikkadpally, Hyderabad-20

3. Smt. Konda Sumana Yadagiri
Assistant Professor,
HOD -Department of Biochemistry
Indira Priyadarshini Govt. Degree College for Women
Nampally, Hyderabad

K. Sumana
Assistant Professor
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V. S. Srilatha
Chairperson

Department of Biochemistry
Hindi Mahavidyalaya
AUTONOMOUS & NAAC RE-ACCREDITED
Nallakunta, Hyderabad-44.

Ch. Venkata Ramana Devi
University Nominee
Board of Studies in Biochemistry
Osmania University
Nallakunta, Hyderabad-44.

S. Ravi Kiran
Principal

NALLAKUNTA, HYD-44

DEPARTMENT OF BIOCHEMISTRY
AGENDA OF THE MEETING
24-07-2017 Monday at 11.30 am

- 2.1 Welcome address by the chair.
- 2.2 Previous Meeting Details.
- 2.3 Details of credit base choice system.
- 2.4 Discussion and Distribution of Common Core Syllabus I-II.
- 2.5 Discussion on Pattern of Semester Exam I & II.
- 2.6 Discussion of Pattern of Semester Exam Model Question Paper & Internal Model Question Paper
- 2.7 Marks allotted for Internal and End Semester exams.
- 2.8 Panel of Examiners
- 2.9 Any other matter
- 2.10 Vote of Thanks

S. Ravi
Head Department of Bio-chemistry
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 Chikkadobally, Hyderabad

Department of BioChemistry
Hindi Mahavidyalaya
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V. S. Sridhar
Chairperson

Ch. Nandu
University Nominee
 Osmia University
 Hyderabad

K. Suresh
Assistant Professor
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HINDI MAHAVIDYALAYA
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I Year I Semester

SCHEME OF INSTRUCTIONS & EVALUATION

B.SC. BT MB CH / BC MB CH

| FIRST YEAR SEMESTER-I | | | | | | | Semester End exam | | Continuous Internal Evaluation | | Total | Practical 2 HRS |
|-----------------------|---------------------------------|-------------|---------------|---------|-----------------|-------|-------------------|-------|--------------------------------|--|-------|-----------------|
| Code | Course Title | Course Type | HPW | Credits | Duration in HRS | Marks | Exam Duration | Marks | | | | |
| BS101 | Environmental Studies | AECC-1 | 2 | 2 | 2 | 40 | 30 min | 10 | | | 50 | - |
| BS102 | English | CC-1A | 5 | 5 | 3 | 80 | 30 min | 20 | | | 100 | - |
| BS103 | Second Language (H/ S/ T) | CC -2A | 5 | 5 | 3 | 80 | 30 min | 20 | | | 100 | - |
| BS104 | BIO-CHEMISTRY / BIO- TECHNOLOGY | DSC-1A | 4 T + 2 P = 6 | 4+1=5 | 3 | 80 | 30 min | 20 | | | 100 | 25 |
| BS105 | MICROBIOLOGY | DSC-2A | 4 T + 2 P = 6 | 4+1=5 | 3 | 80 | 30 min | 20 | | | 100 | 25 |
| BS106 | CHEMISTRY | DSC-3A | 4 T + 2 P = 6 | 4+1=5 | 3 | 80 | 30 min | 20 | | | 100 | 25 |
| TOTAL NO. OF CREDITS | | | | 27 | | 440 | | 110 | | | 625 | |

10/10/2020

Head Department of Bio-chemistry
AURORA'S DEGREE COLLEGE
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Chidambaram

Assistant Professor
Department of Biochemistry
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Nampally, Hyderabad-500 001

V. Seelatha
Department of Biochemistry
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HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD
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B.Sc. I YEAR SEMESTER – I

BIOCHEMISTRY PAPER - I

Chemistry of Biomolecules

Code: BS104

Instruction

| | |
|---|-------------------|
| Theory Classes | 4 Hrs/Week |
| Practical Classes | 2 Hrs/Week |
| Credit for Theory | 4 |
| Credit for Practical | 1 |
| Duration of Semester Examination | 3 Hrs |
| Duration of Internal Examination | 30 Min |
| Semester Examination Marks | 80 Marks |
| Internal Examination Marks | 20 Marks |

Unit 1: Introduction: Scope of biochemistry

Water as biological solvent

Weak acids and bases pH, buffers, Biological Buffers, Henderson- Hasselbalch equation. (Simple numerical problems)

Stereo chemistry with reference to carbohydrates & amino acids.

Unit 2: Carbohydrates

Classification of carbohydrates

Mono saccharide straight chain and ring structures

Reactions of monosaccharides, mutarotation, aminosugars & glycosides

Disaccharides, oligosaccharides & polysaccharides Storage and structural polysaccharides, glycosaminoglycan's and bacterial cell wall polysaccharides.

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NALLAKUNTA, HYD-44

S. Ravi Kumar
Head Department of Bio-chemistry
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V. S. Ravi Kumar
Chairperson
Department of Biochemistry
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University Nominee

K. Suman
Assistant Professor
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[Signature]
Principal

Unit 3: Lipids

Classification of lipids, essential fatty acids.

Reactions & properties of lipids

General properties and structures of neutral fats, waxes, phospholipids
sphingolipids, cholesterol, glycolipids.

Prostaglandins and lipoproteins.

Bio membranes, behavior of amphipathic lipids in water, formation of micelles,
bilayers, vesicles, membrane composition and fluid mosaic model.

Unit 4: Amino acids & proteins

Classification, structure, stereochemistry and chemical reactions of amino acids.

Titration curve of glycine & pK values.

Essential, nonessential amino acids and non-protein amino acids.

Peptide bond- Nature and conformation, Naturally occurring peptides –

Glutathione, enkephalin.

Outlines of protein classification, structural organization of proteins: primary,
secondary, tertiary and quaternary structures (ex. hemoglobin & myoglobin).

General properties of proteins, denaturation and renaturation of
proteins. Determination of amino acid composition of proteins.

Reference Books :

1. **Biochemistry** – Satyanarayana.U and Chakrapani.U, Books & Allied Pvt. Ltd.
2. **Biochemistry** – Telugu Academi
3. **Biochemistry** – Saras publications

S. Raula

Head Department of Bio-chemistry
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V. Skilata
Chairperson

Ch. N. S. Rao
University Nominee

K. S. Rao
Assistant Professor
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HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD
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B.Sc. I YEAR SEMESTER – I
BIOCHEMISTRY PRACTICAL PAPER – I

QUALITATIVE ANALYSIS OF BIOMOLECULES

Code: BS104P

| | |
|--------------------------|---------------------|
| Instruction | 3 Hrs / Week |
| Duration of Exam | 2 Hrs |
| Marks for Exam | 25 Marks |
| Laboratory Course | 45 Hrs |

1. Laboratory general safety procedures.
2. Preparation of standard solutions
3. Determination of pKa values of amino acids by titration
4. Preparation of buffers
5. Qualitative identification of Carbohydrates, Amino acids & Lipids.

References

1. **Experimental Biochemistry** - A student companion-Beedu Sashidhar Rao and VijayDeshpande.

S. Reddy
Head Department of Bio-chemistry
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[Signature]

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Assistant Professor
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V. Sridhar
Chairperson

[Signature]
University Nominee

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(Autonomous)

Department of Biochemistry
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**HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD
(AUTONOMOUS)
B.Sc I Year Semester - I
BIOCHEMISTRY**

Scheme of Model Question Paper

Time – 3 Hrs

Max. Marks: 100

Semester Exam Pattern

80 Marks

**Section – A 8 Short Answer Questions ----- Answer any four
Each carries 5 marks**

5 X 4 = 20 Marks

**Section—B 4 Long answer questions -----with internal choice
Each carries 15 Marks**

4 X 15 = 60 Marks

Total Marks = 80

Internal Assessment Pattern

20 Marks

Duration - 30 Min

In Internal Assessment there will be 3 sections

Sections A 10 –Multiple choice questions 10 X ½ =5 Marks

Section –B 10—Fill in the Blanks 10 X ½ =5 Marks

Section –C 5 - Short Answer Questions 5 X 1= 5Marks

15 Marks

Two Internal Assessment Average is to be considered $\frac{15+15}{2} = 15$ Marks

One Assignment to be given 5 Marks

Internal Assessment Total 20 Marks

Note: Equal Weightage has to be given to all units in each semester

HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD
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B.Sc. I YEAR SEMESTER – I
BIOCHEMISTRY PAPER – I

CHEMISTRY OF BIOMOLECULES

Time: 3 hrs

Max. Marks: 80

SECTION – A

I Write any Four of the following (Short Questions)

4 x 5 = 20 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 ESSAY QUESTIONS. ANSWER ALL THE QUESTIONS 4 X 15 = 60 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

1
2
3
4
5
6
7
8
9 a
10 b or
11 a or b
12 a or b

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Nallakunta, Hyderabad-44.
V. S. S. Reddy
Chairperson

Ch. D. S. Reddy
University Nominee

Assistant Professor
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Nampally, Hyderabad-500 001

Principal

ALAYA
Nallakunta
MALLAKUNTA, HYD-44

HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD
(AUTONOMOUS & NAAC RE-ACCREDITED)

B.Sc. I YEAR SEMESTER – I
BIOCHEMISTRY PAPER - I
QUALITATIVE ANALYSIS OF BIOMOLECULES
PRACTICAL MODEL QUESTION PAPER

Time: 2Hrs

Max. Marks : 25

- | | |
|---|-----|
| I Write the principles of the following experiments | 5M |
| II Major experiment | 10M |
| III Minor experiment | 5M |
| IV Record & Viva | 5M |

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V. Selata
Chairperson

Ch. M. M.
University Nominee

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Principal

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Nallakunta, Hyderabad-44



B.Sc. I YEAR SEMESTER II

DEPARTMENT OF BIOCHEMESTRY

2017-2018

SCHEME OF INSTRUCTIONS & EVALUATION

B.SC. BT MB CH /BC MB CH

| FIRST YEAR SEMESTER-II | | | | | | | | | |
|------------------------|---------------------------------|-------------|--------------|---------|-------------------|-------|--------------------------------|-------|-----------------|
| Code | Course Title | Course Type | HPW | Credits | Semester End exam | | Continuous Internal Evaluation | | Practical 2 HRS |
| | | | | | Duration in HRS | Marks | Exam Duration | Marks | |
| BS201 | Gender sensitization | AECC-2 | 2 | 2 | 2 | 40 | 30 min | 10 | 50 |
| BS202 | English | CC-1B | 5 | 5 | 3 | 80 | 30 min | 20 | 100 |
| BS203 | Second Language (H/ S/ T) | CC -2B | 5 | 5 | 3 | 80 | 30 min | 20 | 100 |
| BS204 | BIO-CHEMISTRY / BIO- TECHNOLOGY | DSC-1B | 4 T + 2P = 6 | 4+1=5 | 3 | 80 | 30 min | 20 | 100 |
| BS205 | MICROBIOLOGY | DSC-2B | 4 T + 2P = 6 | 4+1=5 | 3 | 80 | 30 min | 20 | 100 |
| BS206 | CHEMISTRY | DSC-3B | 4 T + 2P = 6 | 4+1=5 | 3 | 80 | 30 min | 20 | 100 |
| TOTAL NO. OF CREDITS | | | | | | 440 | | 110 | 625 |
| TOTAL NO. OF CREDITS | | | | | 54 | | | | |

Assistant Professor
Department of Biochemistry
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Degree College for Women
Campus, Hyderabad-500 0

Head Department of Bio-chemistry
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MAHARAJA'S COLLEGE
HYD-44

HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD

(AUTONOMOUS & NAAC RE-ACCREDITED)

B.Sc. I YEAR SEMESTER – II

BIOCHEMISTRY PAPER II

Chemistry of Nucleic Acids & Biochemical Techniques

Code: BS204

Instruction

Theory Classes

Practical Classes

Credit for Theory

Credit for Practical

Duration of Semester Examination

Duration of Internal Examination

Semester Examination Marks

Internal Examination Marks

4 Hrs/Week

2 Hrs/Week

4

1

3 Hrs

30 Min

80 Marks

20 Marks

Unit 1: Composition of Nucleic acids Nature (functions) of nucleic acids.

Structure of purines and pyrimidines.

Nucleosides, nucleotides, DNA & RNA.

Stability and formation of phosphodiester linkages, effect of acids, alkali and nucleases.

Photochemical and Spectral characteristics of Nucleic acid.

Unit 2: Structure of nucleic acids

Watson & Crick DNA double helix structure.

Introduction to circular DNA, supercoiling, helix to random coil transition, denaturation of nucleic acids.

Hyper chromic effect, T_m values and their significance.

Reassociation kinetics, cot curves and their significance.

Different types of RNA and their biological functions.

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Head Department of Bio-chemistry
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Hyderabad 20.

Ch. M. M.
University Nominee

K. Sumana
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Principal

Unit3:Spectrophotometric and Centrifugation Techniques.

Colorimetry and spectrophotometry.

Beer-Lamberts law and its limitations.

UV, visible spectra, molar extinction coefficient.

Principle of fluorimetry .

Principle and applications of Centrifugation technique in biology

Unit.4: Chromatography techniques

Principle in chromatographic technique.

Application of chromatographic technique in paper chromatography

dimensional), TLC, gel filtration (molecular sieve), ion exchange

Chromatography and affinity chromatography.

References:

1. Biochemistry – Satyanarayana .U and Chakrapani.U, Books & Allied Pvt. Ltd.
2. Biophyscial chemistry - Upadhyay upadhyay

S. R. Reddy
Head Department of Bio-chemistry
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Department of Biochemistry
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V. S. Reddy
Chairperson

Ch. S. Reddy
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Principal

MALLAKURTHI, HYD-44

HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD

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B.Sc. I YEAR SEMESTER – II

BIOCHEMISTRY PRACTICAL PAPER II

Quantitative Analysis of Biomolecules

Code: BS204P

Instruction

3 Hrs/Week

Duration of Exam

3 Hrs

Marks for Exam

25 Marks

Laboratory Course

45 Hrs

1. Aminoacid Estimation by Ninhydrin method
2. Protein Estimation by Folin's Method
3. Total Sugar Estimation by Anthrone Method
4. Total Reducing Sugar Estimation by Dinitrosalicylate
5. Estimation of Keto sugar by Roe's resorcinol Method

References

1. Experimental Biochemistry-A student companion-Beedu Sashidhar Rao and Vijay Deshpande.

Department of Biochemistry
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V. S. S. Reddy
Chairperson

S. Reddy
Head Department of Bio-chemistry
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K. Srinivas
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Principal

HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD
(AUTONOMOUS)
B.Sc I Year Semester - II
BIOCHEMISTRY

Scheme of Model Question Paper

Time – 3 Hrs

Max. Marks: 100

Semester Exam Pattern

80 Marks

Section – A 8 Short Answer Questions ----- Answer any four
Each carries 5 marks

5 X 4 = 20 Marks

Section—B 4 Long answer questions -----with internal choice
Each carries 15 Marks

4 X 15 = 60 Marks

Total Marks = 80

Internal Assessment Pattern

20 Marks

Duration - 30 Min

In Internal Assessment there will be 3 sections

Sections A 10 –Multiple choice questions 10 X ½ =5 Marks

Section –B 10—Fill in the Blanks 10 X ½ =5 Marks

Section –C 5 - Short Answer Questions 5 X 1= 5Marks

15 Marks

Two Internal Assessment Average is to be considered $\frac{15+15}{2} = 15$ Marks

One Assignment to be given 5 Marks

Internal Assessment Total 20 Marks

Note: Equal Weightage has to be given to all units in each semester

HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD
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B.Sc. I YEAR SEMESTER – II
BIOCHEMISTRY PAPER – II
CHEMISTRY OF NUCLEIC ACIDS & BIOCHEMICAL TECHNIQUES

Time: 3 hrs

Max. Marks: 80

SECTION – A

I Write any Four of the following (Short Questions)

4 x 5 = 20 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 ESSAY QUESTIONS. ANSWER ALL THE QUESTIONS 4 X 15 = 60 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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S. Reddy
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Chinnu
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(AUTONOMOUS & NAAC RE-ACCREDITED)

B.Sc. I YEAR SEMESTER – II
BIOCHEMISTRY PAPER - II
QUANTITATIVE ANALYSIS OF BIOMOLECULES
PRACTICAL MODEL QUESTION PAPER

Time: 2Hrs

Max. Marks : 25

- | | | |
|-----|---|-----|
| I | Write the principles of the following experiments | 5M |
| II | Major experiment | 10M |
| III | Minor experiment | 5M |
| IV | Record & Viva | 5M |

S. Renuka
Head Department of Bio-chemistry
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V. Seelatha
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Chunna
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K. Suma
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[Signature]
Principal

HINDI MAHAVIDYALAYA
(Autonomous & NAAC & RE-ACCREDITED)
Department of Bio-Chemistry
Panel of Examiners

| | Name and Designation | Mobile No. |
|---|--|------------|
| 1 | Mrs. D. Rajini Department of Biochemistry Bhavan's Vivekananda College of Science & Humanities, Sainikpuri, Secunderabad | 9703536015 |
| 2 | Dr. S. Ravi Kiran Head – Department of Biochemistry Aurora Degree & PG College Chikkadpally, Hyderabad. | 9100000562 |
| 3 | Ms. G. Bindu Department of Biochemistry Aurora Degree & PG College Chikkadpally, Hyderabad. | 9100000504 |
| 4 | Ms. C. Vanisree Head – Department of Biochemistry St. Pious X Degree & PG College Nacharam, Hyderabad. | 9703599392 |
| 5 | Smt. KondaSumanaYadagiri Assistant Professor, HOD -Department of Biochemistry Indira Priyadarshini Govt. Degree College for Women Nampally, Hyderabad | 9441201640 |

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NALLAKOTA

HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD
(AUTONOMOUS)
DEPARTMENT OF BIOCHEMISTRY
BOARD OF STUDIES

Academic Year – 2017-18 Semester I & II

Minutes of BOS Meeting

BOS meeting of the Department of BioChemistry was held on 24/07/2017, Monday at 11.30 A.M

The following members were present

| | | |
|------------------------------|---|--------------------|
| Prof. Ch.Venkata Ramana Devi | - | University Nominee |
| Mrs. V. Srilatha | - | Chairperson |
| Dr. Ravi Kiran | - | Member |
| Ms. Ch. Vidya | - | Member |
| Mrs. Konda Sumana Yadagiri | - | Member |

2.1 Welcome address by the chair

The chair welcomed the University Nominee, Ex-officio Member BOS, O.U Department of Biochemistry and Members of B.O.S.

2.2 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 Credits are given for theory paper and 1 credit is given for practical in each semester.

2.3 Discussion and Distribution of Common Core Syllabus.

i. Members were informed by the chair that Department of Biochemistry, Hindi Mahavidyalaya is following common core syllabus prescribed by Osmania University for B.Sc I Year for Semester I and II.

ii. We are adopting Osmania University same syllabus of each Semester as it is with minor changes in theory papers of semester I & II.

Syllabus copy for both the semesters is enclosed.

Syllabus was approved by the Members of BOS.

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S. R. Ravi
Head Department of Bio-chem
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Chikkadpally, Hyderabad

2.4 Marks allotted for Internal and End Semester exams.

- Internal assessment is of 20 marks. (15M for Internal + 5 M for assignment).In each Semester two internal assessment of 15 Marks will be conducted and an average of both the internal assessments will be added in the marks of Theory exam.
- Theory Question paper is of 80 marks.
- Total allotted marks are 100.

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

2.5 Discussion on Pattern and Model Paper of Semester exam and Model Paper of Internal Exam

- It was informed by the department that in each Semester Two Internal exams will be conducted for 15 marks. The internal assessment will have three sections.
Section – A 10 Multiple choice questions each carries $\frac{1}{2}$ marks ($10 \times \frac{1}{2} = 5M$),
Section – B 10 Fill in the blanks each carries $\frac{1}{2}$ marks ($10 \times \frac{1}{2} = 5M$) and
Section – C 5 short notes each 1mark ($5 \times 1 = 5$)
Average of marks of these two internal exams will be taken. 5 marks will be allotted for assignment.
- Semester exam will be conducted as per the Almanac which will be provided by the exam branch. Internal exam duration will be 30Mts and Semester exam duration will be of 3 hrs.
- Model Question paper for Semester I and Semester II was discussed. Theory paper for each Semester will have 2 sections.
 - Section A contains 8 short Questions. The student has to answer four questions. Each Question carries 5 Marks ($4 \times 5 = 20$ Marks)
 - Section B contains 4 Essay type Questions with internal choice. Each question carries 15 Marks ($4 \times 15 = 60$ Marks)

- Pattern of Model Theory Question Papers for DSC Paper I and Paper II are enclosed.
- Pattern of Model Theory Question Papers for DSC was approved by Member of BOS.

2.6 Discussion on Practical Exam Model paper.

It was decided in BOS meeting that 50 Marks Practical Exam of 3 hrs will be held in each Semester and 1 credit will be given for Practical in each Semester.

- It is decided that the practical examinations held for B.Sc first years (Semester I & II) from the academic year 2017-18 onwards will have the pattern of 25 marks scheme

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Chairperson

University Nonfinee

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and the credits will remain the same i.e. 1 credit. The duration of the exam will be 2 hours.

- Pattern of Model Practical Question Papers for Paper I & II are enclosed.
- Pattern of Model Practical Question Papers was approved by Members of BOS

2.7 Panel of Examiners

The panel of examiners was approved by the members.

- List is enclosed

2.8 Any other matter.

2.9 Vote of Thanks

Meeting concluded with the Vote of Thanks by Mrs.V. Srilatha

Chairperson

University Nominee

Members

Principal

1.

2.

3.

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Ch. V. Ravi
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B.Sc. II YEAR SEMESTER III

DEPARTMENT OF BIOCHEMESTRY

2017-2018

DEPARTMENT OF BIOCHEMISTRY

AGENDA OF THE MEETING

24-07-2017 Monday at 11.30 am

- 2.1 Welcome address by the chair.
- 2.2 Previous Meeting Details.
- 2.3 Details of credit base choice system.
- 2.4 Discussion and Distribution of Common Core Syllabus III-IV.
- 2.5 Discussion on Pattern of Semester Exam III & IV.
- 2.6 Discussion of Pattern of Semester Exam Model Question Paper & Internal Model Question Paper
- 2.7 Marks allotted for Internal and End Semester exams.
- 2.8 Panel of Examiners
- 2.9 Any other matter
- 2.10 Vote of Thanks

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V. Srilata
Chairperson

Ch. M. S. Reddy
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B. Suman
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S. S. S. S.
Principal
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V. Selada

S. Ramesh
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Ch. N. Rao

K. Suman
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SCHEME OF INSTRUCTIONS & EVALUATION

B.SC. BT MB CH / BC MB CH

SECOND YEAR SEMESTER-III

| Code | Course Title | Course Type | HPW | Credits | Semester End exam | | Continuous Internal Evaluation | | Total | Practical 3 HRS |
|-------|---------------------------------|-------------|--------------|---------|-------------------|-------|--------------------------------|-------|-------|-----------------|
| | | | | | Duration in HRS | Marks | Exam Duration | Marks | | |
| BS301 | A/B | SEC-1 | 2 | 2 | 2 | 40 | 30 min | 10 | 50 | - |
| BS302 | English | CC-1C | 5 | 5 | 3 | 80 | 30 min | 20 | 100 | - |
| BS303 | Second Language | CC-2C | 5 | 5 | 3 | 80 | 30 min | 20 | 100 | - |
| BS304 | BIO-CHEMISTRY / BIO- TECHNOLOGY | DSC-1C | 4 T + 2P = 6 | 4+1=5 | 3 | 80 | 30 min | 20 | 100 | 50 |
| BS305 | MICROBIOLOGY | DSC-2C | 4 T + 2P = 6 | 4+1=5 | 3 | 80 | 30 min | 20 | 100 | 50 |
| BS306 | CHEMISTRY | DSC-3C | 4 T + 2P = 6 | 4+1=5 | 3 | 80 | 30 min | 20 | 100 | 50 |
| | TOTAL NO. OF CREDITS | | | 27 | | 440 | | 110 | 700 | |

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HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD

(AUTONOMOUS & NAAC RE-ACCREDITED)

B.Sc. II YEAR SEMESTER – III

BIOCHEMISTRY

BIOENERGETICS, BIOLOGICAL OXIDATIONS AND ENZYMOLOGY

Code: BS304

Instruction

Theory Classes

4 Hrs/Week

Practical Classes

2 Hrs/Week

Credit for Theory

4

Credit for Practical

1

Duration of Semester Examination

3 Hrs

Duration of Internal Examination

30 Min

Semester Examination Marks

80 Marks

Internal Examination Marks

20 Marks

UNIT- I : Bioenergetics

1. Energy transformations in the living system
2. Free energy, Enthalpy and Entropy concepts.
3. Exergonic and endergonic reactions.
4. High energy compounds.
5. Phosphate group transfer potential.
6. Substrate level phosphorylation.
7. Cytochromes-structure, types and their functions

UNIT- II: Biological Oxidations

1. Biological oxidations: Definition, enzymes involved- oxidases, dehydrogenases and oxygenases. 'o). Standard reduction potentials ϵ^0 , ϵ , ϵ
2. Redox reactions. Redox couplers. Reduction potential ('o) of some biochemically important half reactions.
3. Ultrastructure of mitochondria, Electron transport chain and carriers involved.
4. Oxidative phosphorylation, theories of oxidative phosphorylation- Mitchell's chemiosmotic theory. Fo F1- ATPase, Inhibitors of respiratory chain and oxidative phosphorylation, uncouplers.
5. Formation of reactive oxygen species and their disposal through enzymatic reactions.
6. Ultrastructure of chloroplast
7. Cyclic and non-cyclic photophosphorylation.

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UNIT- III : Introduction to Enzymology

1. Introduction to biocatalysis, differences between chemical and biological catalysis.
2. Nomenclature and classification of enzymes.
3. Definition of holo-enzyme, apo-enzyme, coenzyme, cofactor, Fundamentals of enzyme assay, enzyme units.
4. Methods of Enzyme purification
5. Enzyme specificity. Active site.
6. Principles of energy of activation, transition state.
7. Interaction between enzyme and substrate- lock and key, induced fit models.

UNIT – IV: Enzyme Kinetics and Enzyme action

1. Rate of a Reaction – Law of Mass action, Factors affecting the catalysis- substrate concentration, pH, temperature, Time, Enzyme concentration and Product concentration
2. Michaelis - Menten equation for single substrate reaction, significance of K_M and V_{max} .
3. Enzyme inhibition- irreversible and reversible, types of reversible inhibitions- competitive and non-competitive.
4. Outline of mechanism of enzyme action- acid-base catalysis, covalent catalysis, electrostatic catalysis, and metal ion catalysis.
5. Regulation of enzyme activity- allosterism and cooperativity, ATCase as an allosteric enzyme, covalent modulation- covalent phosphorylation of phosphorylase
6. Zymogen activation- activation of trypsinogen and chymotrypsinogen.
7. Isoenzymes (LDH) and Multienzyme complexes (PDH). Ribozyme.

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2. Biochemistry – Berg.J.M., Tymoczko.J.L. and Stryer.L., Freeman & Co.
3. Biochemistry – Voet.D and Voet., J.G., John Wiley & Sons .
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11. Understanding Enzymes – Palmer.T., Ellis Harwood.
12. Enzymes – Biochemistry, Biotechnology, Clinical Chemistry – Palmer.T., Affiliated East-West Press
13. Biochemistry- The Molecular Basis of Life – McKee.T and McKee, J. R, McGraw-Hill.

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B.Sc. II YEAR SEMESTER – III

BIOCHEMISTRY PRACTICAL PAPER – III

ENZYMOLGY

Code: -BS304P

Instruction

Duration of Exam

Marks for Exam

Laboratory Course

3 Hrs/Week

3 Hrs

50 Marks

45 Hrs

1. Assay of salivary α -amylase -amylase from sweet potatoes β
2. Assay of β -amylase from sweet potatoes β
3. Assay of urease
4. Assay of catalase
5. Assay of phosphatase
6. Determination of optimum temperature and pH for amylase
7. Determination of optimum pH for phosphatase
8. Effect of Substrate concentration of amylase activity

References

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2. **Laboratory Manual in Biochemistry**- Jayaraman, J. Wiley Eastern
3. **Enzyme Assays**- A practical Approach: Eienthal, R and Dawson, M.I., IRL Press.
4. **Biochemical Methods**- Sadasivam S and Manickyam A. New Age International Publishers.

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HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD
(AUTONOMOUS)
B.Sc II Year Semester - III
BIOCHEMISTRY

Scheme of Model Question Paper

Time – 3 Hrs

Max. Marks: 100

Semester Exam Pattern

80 Marks

Section – A 8 Short Answer Questions ----- Answer any four
Each carries 5 marks

$5 \times 4 = 20$ Marks

Section—B 4 Long answer questions -----with internal choice
Each carries 15 Marks

$4 \times 15 = 60$ Marks

Total Marks = 80

Internal Assessment Pattern

20 Marks

Duration - 30 Min

In Internal Assessment there will be 3 sections

Sections A 10 –Multiple choice questions $10 \times \frac{1}{2} = 5$ Marks

Section –B 10—Fill in the Blanks $10 \times \frac{1}{2} = 5$ Marks

Section –C 5 - Short Answer Questions $5 \times 1 = 5$ Marks

15 Marks

Two Internal Assessment Average is to be considered $\frac{15+15}{2} = 15$ Marks

One Assignment to be given

5 Marks

Internal Assessment Total

20 Marks

Note: Equal Weightage has to be given to all units in each semester

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B.Sc. II YEAR SEMESTER - III
BIOCHEMISTRY Paper - III
BIOENERGETICS, BIOLOGICAL OXIDATIONS & ENZYMOLOGY

Time: 3 hrs

SECTION - A

Max. Marks: 80

I Write any Four of the following (Short Questions)

4 x 5 = 20 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 ESSAY QUESTIONS. ANSWER ALL THE QUESTIONS 4 X 15 = 60 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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B.Sc. II YEAR SEMESTER – III
BIOCHEMISTRY PAPER - III

ENZYMOLGY
Practical Model Question Paper

Time: 3Hrs

Max. Marks : 50

- | | | |
|-----|---|-----|
| I | Write the principles of the following experiments | 10M |
| II | Major experiment | 20M |
| III | Minor experiment | 10M |
| IV | Record | 5M |
| V | Viva | 5M |

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B.Sc. II YEAR SEMESTER IV

DEPARTMENT OF BIOCHEMESTRY

2017-2018

SCHEME OF INSTRUCTIONS & EVALUATION

B.SC. B.T. MB CH / BC MB CH

SECOND YEAR SEMESTER-IV

Head Department of Bio-chemistry
AURORA'S DEGREE COLLEGE
Chikkadpally, Hyderabad-20.

| Code | Course Title | Course Type | HPW | Credits | Semester End exam | | Continuous Internal Evaluation | | Total | Practical 3 HRS |
|----------------------|---------------------------------|-------------|--------------|---------|-------------------|-------|--------------------------------|-------|-------|-----------------|
| | | | | | Duration in HRS | Marks | Exam Duration | Marks | | |
| BS401 | A/B | SEC-1 | 2 | 2 | 2 | 40 | 30 min | 10 | 50 | - |
| BS402 | English | CC-1D | 5 | 5 | 3 | 80 | 30 min | 20 | 100 | - |
| BS403 | Second Language (H/ S/ T) | CC-2D | 5 | 5 | 3 | 80 | 30 min | 20 | 100 | - |
| BS404 | BIO-CHEMISTRY / BIO- TECHNOLOGY | DSC-1D | 4 T + 2P = 6 | 4+1=5 | 3 | 80 | 30 min | 20 | 100 | 50 |
| BS405 | MICROBIOLOGY | DSC-2D | 4 T + 2P = 6 | 4+1=5 | 3 | 80 | 30 min | 20 | 100 | 50 |
| BS406 | CHEMISTRY | DSC-3D | 4 T + 2P = 6 | 4+1=5 | 3 | 80 | 30 min | 20 | 100 | 50 |
| TOTAL NO. OF CREDITS | | | | 27 | | 440 | | 110 | 700 | |

54

TOTAL NO. OF CREDITS

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B.Sc. II YEAR SEMESTER – IV

BIOCHEMISTRY

INTERMEDIARY METABOLISM

Code: BS 404

Instruction

Theory Classes

4 Hrs/Week

Practical Classes

2 Hrs/Week

Credit for Theory

4

Credit for Practical

1

Duration of Semester Examination

3 Hrs

Duration of Internal Examination

30 Min

Semester Examination Marks

80 Marks

Internal Examination Marks

20 Marks

UNIT-I : Amino acid Metabolism

1. General reactions of amino acid metabolism- transamination, decarboxylation and deamination
2. Urea cycle and regulation
3. Catabolism of carbon skeleton of amino acids- glycolytic and ketogenic amino acids.
4. Metabolism of glycine, serine, aspartic acid, methionine, phenylalanine and leucine.
5. Biosynthesis of creatine.
6. Inborn errors of aromatic amino acids
7. Inborn errors of branched chain amino acid metabolism.

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UNIT- II : Carbohydrate Metabolism

1. Concept of anabolism and catabolism.
2. Glycolytic pathway, energy yield. Fate of pyruvate- formation of lactate and ethanol, Pasteur effect.
3. Citric acid cycle, regulation, energy yield, amphipathic role. Anaplerotic reactions.
4. Glycogenolysis and glycogenesis.
5. Pentose phosphate pathway.
6. Gluconeogenesis.
7. Photosynthesis- Light and Dark reactions, Calvin cycle and C4 Pathway, CAM Pathway

UNIT- III: Lipid Metabolism

1. Catabolism of fatty acids (β - oxidation) with even and odd number of carbon atoms
2. Ketogenesis
3. denovosynthesis of fatty acids
4. Elongation of fatty acids in mitochondria and microsomes
5. Biosynthesis and degradation of triacylglycerol
6. Biosynthesis of lecithin.
7. Biosynthesis of cholesterol.

UNIT- IV : Nucleic acid Metabolism

1. Biosynthesis of purine and pyrimidine nucleotides, de novo and salvage pathways.
2. Regulation of purine and pyrimidine nucleotides
3. Catabolism of purines and pyrimidines.
4. Biosynthesis of deoxyribonucleotides- ribonucleotidereductase and thymidylate synthase and their significance.
5. Disorders of nucleotide metabolism- Gout, Lesch- Nyhan syndrome.
6. Biosynthesis of heme
7. Degradation of heme

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References

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Freeman & Co.
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J.T.V., Oxford & IBH Publishers.
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I. R. Lefkowitz, R.J. Handler, P., and White, A. McGraw-Hill
6. Outlines of Biochemistry – Conn.E.E.,Stumpf.P.K., Bruening, G and
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8. Bichemistry-Lippincott's Illustrated Reviews. Champe, P.C. and Harvey, R.
A. Lippincott
9. Fundamentals of Biochemistry –Jain, J.L., Jain, S., Jain, N. S. Chand & Co.
10. Biochemistry – Satyanarayana.U and Chakrapani.U, Books & Allied Pvt.
Ltd.
11. Biochemistry – Rama Rao. A and RatnaKumari.D, Kalyani Publishers.

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Chinnu
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**HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD
(AUTONOMOUS & NAAC RE-ACCREDITED)**

B.Sc. II YEAR SEMESTER – IV

BIOCHEMISTRY PRACTICAL PAPER – IV

BIOCHEMICAL PREPARATIONS AND SEPARATIONS

Code: BS404P

| | |
|--------------------------|---------------------|
| Instruction | 3 Hrs / Week |
| Duration of Exam | 3 Hrs |
| Marks for Exam | 50 Marks |
| Laboratory Course | 45 Hrs |

1. Absorption maxima of coloured substances- p-Nitrophenol, Methyl orange and KMnO₄.
2. Absorption spectra of Amino acid – Tyrosine; protein-BSA, nucleic acids- Calf thymus DNA.
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. Separation of Plant pigments by TLC

References

1. **Experimental Biochemistry** - A student companion-Beedu Sashidhar Rao and Vijay Deshpande.

2. **Laboratory Manual in Biochemistry**- Jayaraman, J. Wiley Eastern

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HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD
(AUTONOMOUS)
B.Sc II Year Semester - IV
BIOCHEMISTRY

Scheme of Model Question Paper

Time – 3 Hrs

Max. Marks: 100

Semester Exam Pattern

80 Marks

Section – A 8 Short Answer Questions ----- Answer any four
Each carries 5 marks

5 X 4 = 20 Marks

Section—B 4 Long answer questions -----with internal choice
Each carries 15 Marks

4 X 15 = 60 Marks

Total Marks = 80

Internal Assessment Pattern

20 Marks

Duration - 30 Min

In Internal Assessment there will be 3 sections

Sections A 10 –Multiple choice questions 10 X ½ =5 Marks

Section –B 10—Fill in the Blanks 10 X ½ =5 Marks

Section –C 5 - Short Answer Questions 5 X 1= 5Marks

15 Marks

Two Internal Assessment Average is to be considered $\frac{15+15}{2} = 15$ Marks

One Assignment to be given 5 Marks

Internal Assessment Total 20 Marks

Note: Equal Weightage has to be given to all units in each semester

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**B.Sc. II YEAR SEMESTER – IV
BIOCHEMISTRY PAPER - IV
INTERMEDIARY METABOLISM**

Time: 3 hrs

Max. Marks: 80

SECTION – A

I Write any Four of the following (Short Questions)

4 x 5 = 20 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 ESSAY QUESTIONS. ANSWER ALL THE QUESTIONS 4 X 15 = 60 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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**B.Sc. II YEAR SEMESTER – IV
BIOCHEMISTRY PAPER - IV
BIOCHEMICAL PREPARATIONS AND SEPARATIONS
Practical Model Question Paper**

Time: 3Hrs

Max. Marks: 50

| | | |
|------------|--|------------|
| I | Write the principles of the following experiments | 10M |
| II | Major experiment | 20M |
| III | Minor experiment | 10M |
| IV | Record | 5M |
| V | Viva | 5M |

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HINDI MAHAVIDYALAYA

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Affiliated to Osmania University
Nallakunta, Hyderabad-44
2017-18 CBCS STRUCTURE

HINDI MAHAVIDYALAYA
(Autonomous)
M.A. Commerce & Science

SEC: Skill Enhancement Course for Semester III & IV

| Code | Course Title | Course | Course | Department | HPW | Credits | Duration in Hrs | Marks | Exam Duration | Continuous Internal Evaluation | Total Marks |
|-------|---|------------|--------|-------------------|-----|---------|-----------------|-------|---------------|--------------------------------|-------------|
| BA301 | Legislative Practices and Procedures | B.A. | SEC-1 | Political Science | 2 | 2 | 2 | 40 | 30 Min | 10 | 50 |
| BA401 | Laws, Duties and Rights of Citizens | B.A. | SEC-2 | Political Science | 2 | 2 | 2 | 40 | 30 Min | 10 | 50 |
| BA301 | Historical and Cultural Tourism in India | B.A. | SEC-1 | History | 2 | 2 | 2 | 40 | 30 Min | 10 | 50 |
| BA401 | Archives and Museums | B.A. | SEC-2 | History | 2 | 2 | 2 | 40 | 30 Min | 10 | 50 |
| BC301 | Principles of Insurance | B.Com. | SEC-1 | Commerce | 2 | 2 | 2 | 40 | 30 Min | 10 | 50 |
| BC401 | Practice of life insurance | B.Com. | SEC-2 | Commerce | 2 | 2 | 2 | 40 | 30 Min | 10 | 50 |
| BS301 | Computational Biochemistry | B.Sc. (LS) | SEC-1 | Biochemistry | 2 | 2 | 2 | 40 | 30 Min | 10 | 50 |
| BS401 | Medical Lab Technology | B.Sc. (LS) | SEC-2 | Biochemistry | 2 | 2 | 2 | 40 | 30 Min | 10 | 50 |
| BS301 | Haematology | B.Sc. (LS) | SEC-1 | Microbiology | 2 | 2 | 2 | 40 | 30 Min | 10 | 50 |
| BS401 | Food Adulteration | B.Sc. (LS) | SEC-2 | Microbiology | 2 | 2 | 2 | 40 | 30 Min | 10 | 50 |
| BS301 | Enzyme Technology | B.Sc. (LS) | SEC-1 | Biotechnology | 2 | 2 | 2 | 40 | 30 Min | 10 | 50 |
| BS401 | Immunotechnology | B.Sc. (LS) | SEC-2 | Biotechnology | 2 | 2 | 2 | 40 | 30 Min | 10 | 50 |
| BS301 | A: SciLab - 1 | B.Sc. (PS) | SEC-1 | Computer Science | 2 | 2 | 2 | 40 | 30 Min | 10 | 50 |
| | B: Boolean Algebra | B.Sc. (PS) | SEC-1 | Computer Science | 2 | 2 | 2 | 40 | 30 Min | 10 | 50 |
| BS401 | C: SciLab - 2 | B.Sc. (PS) | SEC-2 | Computer Science | 2 | 2 | 2 | 40 | 30 Min | 10 | 50 |
| | D: Digital Logic | B.Sc. (PS) | SEC-2 | Computer Science | 2 | 2 | 2 | 40 | 30 Min | 10 | 50 |
| BS301 | Logic and Sets | B.Sc. (PS) | SEC-1A | Mathematics | 2 | 2 | 2 | 40 | 30 Min | 10 | 50 |
| | Theory of Equations | B.Sc. (PS) | SEC-1B | Mathematics | 2 | 2 | 2 | 40 | 30 Min | 10 | 50 |
| BS401 | Transportation and Game Theory | B.Sc. (PS) | SEC-2C | Mathematics | 2 | 2 | 2 | 40 | 30 Min | 10 | 50 |
| | Number Theory | B.Sc. (PS) | SEC-2D | Mathematics | 2 | 2 | 2 | 40 | 30 Min | 10 | 50 |
| BS301 | Concepts of Sequences of Random Variables | B.Sc. (PS) | SEC-1 | Statistics | 2 | 2 | 2 | 40 | 30 Min | 10 | 50 |
| BS401 | Statistics for Psychology and Education | B.Sc. (PS) | SEC-2 | Statistics | 2 | 2 | 2 | 40 | 30 Min | 10 | 50 |

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(AUTONOMOUS & NAAC RE-ACCREDITED)

B.Sc. II YEAR SEMESTER -III

BIOCHEMISTRY

SKILL ENHANCED COURSE (SEC)-1

COMPUTATIONAL BIOCHEMISTRY

Code: BS 301

Instruction

Theory Classes

2 Hrs/Week

Practical Classes

1 Hrs/Week

Credit for Theory

2

Duration of Semester Examination

2Hrs

Duration of Internal Examination

30Min

Semester Examination Marks

40Marks

Internal Examination Marks

10 Marks

UNIT-I: Biochemical Data Analysis and Molecular Graphics

1. Computational Science and Applications of Computers in Biochemistry
2. Biochemical data analysis and Management (Spread sheets and Databases)
3. Internet resources and data retrieval
4. Visualization of Biomolecules by computer graphics
5. Drawing and display of structures.

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UNIT-II: Dynamics of Computational Biochemistry

1. Databases of Receptor-Biomolecule interactions
2. Study of Enzyme Kinetics
3. Metabolic databases
4. Gene identification, Protein sequence analysis
5. Principles of molecular modelling.

References:

1. An Introduction to Computational Biochemistry by C. Stan Tsai, A JOHN WILEY & SONS, INC., PUBLICATION
- 2 Computational Biochemistry and Biophysics by Oren M. Becker, Alexander D. MacKerell Jr., Benoit Roux, Masakatsu Watanabe. CRC Press, Taylor & Francis Group.

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**HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD
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**B.Sc. II YEAR SEMESTER – III
BIOCHEMISTRY**

SEC -1 MODEL QUESTION PAPER

Time: 2Hrs

Max. Marks : 40

SECTION – A

Answer the following Questions in short:

2 x 5 = 10marks

1. UNIT - I

2. UNIT - II

SECTION-B

Answer the following essay type questions:

2 x 15 = 30 marks

1 (a) UNIT – I OR (b) UNIT - I

2 (a) UNIT – II OR (b) UNIT - II

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HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD
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B.Sc. II YEAR SEMESTER IV

DEPARTMENT OF BIOCHEMISTRY

SKILL ENHANCEMENT COURSE(SEC)- 2

MEDICAL LAB TECHNOLOGY

Code: BS 401

Instruction

| | |
|---|-------------------|
| Theory Classes | 2 Hrs/Week |
| Practical Classes | 1 Hrs/Week |
| Credit for Theory | 2 |
| Duration of Semester Examination | 2Hrs |
| Duration of Internal Examination | 30Min |
| Semester Examination Marks | 40Marks |
| Internal Examination Marks | 10 Marks |

UNIT-I: Clinical Laboratory principles and Tests

1. Basic principles of Clinical Laboratory, Commonly used equipment and their maintenance, Preparation of reagents and Quality control
2. Phlebotomy - Collection, processing, preservation and transportation of various clinical samples
3. Physical and chemical examinations of urine, CSF, Semen,
4. Complete blood picture (CBP)
5. Tests for sickling, osmotic fragility, G6PD enzyme deficiency, Coomb's test, Identification of Blood parasites and Clinical Enzymology

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UNIT- II: Microbiology and Immunology

1. Histopathology and cytopathology (Preparation of common stains)
2. Microbiology – Basic principles of culture, isolation of bacteria from blood, CSF, tissue, sputum, throat swab, Nasal, eye swabs, aural swab, vaginal swab, wound swab, rectal swab, urine, pleural fluid, ascetic fluid, AFB culture
3. Identification of Coci, Corynebacteria, Diptheria, Mycobacteria, Gram negative bacilli and Gram positive bacilli
4. Techniques of RA factor, VDRL, Widal, Auto Antibodies, Hepatitis, HIV testing and EBV etc
5. Immuno-histochemical staining methods for auto-antibodies and tumour markers.

References:

1. Fischbach, 2005. Manual of lab and diagnostic tests, Lippincott Williams Wilkins, New York.
2. Gradwohl's, 2000. Clinical laboratory methods and diagnosis. (ed) Ales C. Sonnenwirth and Leonard Jarret, M.D.B.I., New Delhi.
3. J Ochei and Kolhatkar, 2002. Medical laboratory science theory and practice, Tata McGraw-Hill, New Delhi.
4. Kanai L. Mukherjee, 2007, Medical laboratory technology Vol.1. Tata McGraw Hill

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**HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD
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**B.Sc. II YEAR SEMESTER – IV
BIOCHEMISTRY**

SEC – 2 MODEL QUESTION PAPER

Time: 2Hrs

Max. Marks : 40

SECTION – A

Answer the following Questions in short:

2 x 5 = 10marks

1. UNIT - I

2. UNIT - II

SECTION-B

Answer the following essay type questions:

2 x 15 = 30 marks

1 (a) UNIT – I OR (b) UNIT - I

2 (a) UNIT – II OR (b) UNIT - II

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DEPARTMENT OF BIOCHEMISTRY
BOARD OF STUDIES
Academic Year – 2017-18
Minutes of BOS Meeting

BOS meeting of the Department of BioChemistry was held on 24/07/2017, Monday at 11.30 A.M

The following members were present

| | | |
|------------------------------|---|--------------------|
| Prof. Ch.Venkata Ramana Devi | - | University Nominee |
| Mrs. V. Srilatha | - | Chairperson |
| Dr. Ravi Kiran | - | Member |
| Ms. Ch. Vidya | - | Member |
| Mrs. Konda Sumana Yadagiri | - | Member |

2.1 Welcome address by the chair

The chair welcomed the University Nominee, Ex-officio Member BOS, O.U Department of Biochemistry and Members of B.O.S.

2.2 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 Credits are given for theory paper and 1 credit is given for practical in each semester.

2.3 Discussion and Distribution of Common Core Syllabus.

- i. Members were informed by the chair that Department of Biochemistry, Hindi Mahavidyalaya is following common core syllabus prescribed by Osmania University for B.Sc II Year for Semester III and IV.
- ii. We are adopting Osmania University same syllabus of each Semester as it is with minor changes in theory papers of semester III & IV.

Syllabus copy for both the semesters is enclosed.
Syllabus was approved by the Members of BOS.

Chairperson

University Nominee

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2.4 Marks allotted for Internal and End Semester exams.

1. Internal assessment is of 20 marks. (15M for Internal + 5 M for assignment). In each Semester two internal assessment of 15 Marks will be conducted and an average of both the internal assessments will be added in the marks of Theory exam.
2. Theory Question paper is of 80 marks.
3. Total allotted marks are 100.
4. Internal assessment is of 10 marks for SEC. One internal assessment of 10 Marks will be conducted and added in the marks of Theory exam.
5. Theory Question paper for SEC is of 40 marks.
6. Total allotted marks are 50 for each SEC.

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

2.5 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 Internal exams will be conducted for 15 marks. The internal assessment will have three sections.
Section – A 10 Multiple choice questions each carries $\frac{1}{2}$ marks ($10 \times \frac{1}{2} = 5M$),
Section – B 10 Fill in the blanks each carries $\frac{1}{2}$ marks ($10 \times \frac{1}{2} = 5M$) and
Section – C 5 short notes each 1mark ($5 \times 1 = 5$)
Average of marks of these two internal exams will be taken. 5 marks will be allotted for assignment.
2. Semester exam will be conducted as per the Almanac which will be provided by the exam branch. Internal exam duration will be 30Mts and Semester exam duration will be of 3 hrs.
3. Model Question paper for Semester III and Semester IV was discussed. Theory paper for each Semester will have 2 sections.
 - i) Section A contains 8 short Questions. The student has to answer four questions. Each Question carries 5 Marks ($4 \times 5 = 20$ Marks)
 - ii) Section B contains 4 Essay type Questions with internal choice. Each question carries 15 Marks ($4 \times 15 = 60$ Marks)
4. Model Question paper for SEC Semester III and Semester IV was discussed. Theory paper for each SEC will have 2 sections.
 - i) Section A contains 2 short Questions. The student has to answer TWO questions. Each Question carries 5 Marks ($2 \times 5 = 10$ Marks)
 - ii) Section B contains 2 Essay type Questions with internal choice. Each question carries 15 Marks ($2 \times 15 = 30$ Marks)

- Pattern of Model Theory Question Papers for DSC and SEC Paper III and Paper IV are enclosed.

- Pattern of Model Theory Question Papers for DSC and SEC was approved by Member of BOS.

[Signature]
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2.6 Discussion on Practical Exam Model paper.

It was decided in BOS meeting that 50 Marks Practical Exam of 3 hrs will be held in each Semester and 1 credit will be given for Practical in each Semester.

- Pattern of Model Practical Question Papers for Paper III and Paper IV are enclosed.
- Pattern of Model Practical Question Papers was approved by Members of BOS

2.7 Panel of Examiners

The panel of examiners was approved by the members.

- List is enclosed

2.8 Any other matter.

2.9 Vote of Thanks

Meeting concluded with the Vote of Thanks by Mrs.V. Srilatha

Chairperson

University Nominee

Members

Principal

1.

2.

3.

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