Board of Studies Meeting Dept. of Biochemistry

SEMESTER PATTERN

w.e.f.

THE ACADEMIC YEAR 2018-2019

SRR & CVR GOVERNMENT DEGREE COLLEGE (AUTONOMOUS)
Vijayawada 520004

AGENDA FOR BOS MEETING

Type of meeting: Board Of Studies meeting in Biochemistry subject.

Facilitator: Mrs.Syed Vaziha Tahaseen I/c. Dept. of Biochemistry.

Note Taker : Ms Pravallika .G , Guest lecturer

Attendees: BOS Members.

Time & Date: 10 AM ON 09 th March 2018, Friday

Location: To be held at Dept. of Biochemistry, SRR&CVR GDC

Agenda Items:

Item 1: Approval of syllabus for Semester I, II, III and IV for the Academic year 2018-19

Item 2: Approval of Question paper, blue print and model paper

Item 3: Approval for Internal assessment component, Minimum marks in internal assessment

Item 4: Approval for Panel of paper- setters and examiners.

Item 5: Approval for syllabus for UGC sponsored Medical lab Technology course.

Item 6: Approval for syllabus for X- ray technology course conducted in collaboration with faculty of Centurion university.

Discussions

Discussions made on the Krishna University biochemistry CBCS syllabus for SEM III and SEM IV

The chairperson of the BoS Sd V Tahaseen welcomed the members and introduced the Krishna university syllabus for semester III and semester IV

As per the feedback report received from the stakeholders on 2017-18 sem 1 and sem 2 syllabus the following minor revisions were carried out in sem 1 and sem 2 syllabus

1. Pka of functional groups in bio-polymers is substituted with Henderson- Hasselbalch equation
2. The topics measurement of PH was deleted as the students come across the same concept in chemistry
3. The concept glycosaminoglycans was deleted as this will be come in higher studies
4. The concept methods of tissue homogenization was deleted to focus more on other concepts in the unit

Sem III and IV syllabus were taken from Krishna university syllabus and major changes were made.

Sem III - Enzymology & Bioenergetics

University nominee Dr. Rajeswari suggested not to focus on enzyme assay and covalent modification of enzymes concepts, as these concepts students will learn in their PG studies

Subject expert Dr. P. Kiranmayi suggested maintaining the same concepts in other units.
Subject expert Mrs. Dorka Vijaya Kumari appreciated the changes proposed

Sem IV- Intermediary Metabolism

As per the suggestion of university subject expert Dr. Kiranmayi the concepts elongation of fatty acids is deleted, as this concept is in PG syllabus

Dr. Rajeswari suggested replacing the methionine metabolism with leucine metabolism.
The concept utilization of nitrate ion is deleted

RESOLUTIONS

The Chairperson, Board of Studies welcomed the members and initiated discussion on the syllabus for I and II year semesters. She apprised the members of the guidelines of the UGC and the CCE regarding the framing of syllabus, and the recommended evaluation ratio for internal and external examinations. The members discussed in detail the various aspects presented before them and unanimously resolved the following:

Resolutions:

1. Resolved to adopt the present University CBCS syllabus for semester I and II, Medical lab Technology course with the suggested modifications.
2. Resolved to approve the division of marks for internal and external examination along with the suggested blue print and model paper.
3. Resolved to approve the list of paper setters and examiners submitted by the department

S.NO	NAME	DESIGNATION	SIGNATURE
1.	Mrs.Syed Vaziha Tahaseen	Chairman	
2.	Dr. J. Rajeswari	University Nominee	
3.	Dr. P. Kiranmayi	Subject Expert	
4.	Mrs. Dorka Vijaya Kumari.B	Subject Expert	

Principal

Biomolecules

Unit – I : Biophysical Concepts 12 hours

Water as a biological solvent and its role in biological processes. Biological relevance of pH. Henderson-Hasselbalch equation. Importance of buffers in biological systems. Donnan membrane equilibrium.

Unit – II : Carbohydrates 12 hours

Carbohydrates: Classification, monosaccharides, D and L designation, open chain and cyclic structures,epimers and anomers.mutarotation. reactions of carbohydrates (due to functional groups - hydroxyl ,aldehyde and ketone). Structure and biological importance of disaccharides (sucrose, lactose, maltose; , structural polysaccharides (cellulose, chitin, pectin) and storage polysaccharides (starch, inulin, glycogen), Bacterial cell wall polysaccharides blood group substances.

Unit – III Lipids 12 hours

Lipids: Classification, saturated and unsaturated fatty acids, structure and properties of fats and oils (acid, saponification and iodine values, rancidity). General structure and functions of phospholipids, sphingolipids and cholesterol. Prostaglandins- structure and biological role of PGD2, PGE2 and PGF2 □.

Biomembranes:,. Membrane composition and organization – Fluid mosaic model.

Unit-IV ; Amino Acids and Peptides 12 hours

Amino Acids: Classification, structure, chemical reactions of amino acids due to carbonyl and amino groups. Titration curve of glycine and p*K* values. Essential and non-essential amino acids, non-protein amino acids. Peptide bond - nature and conformation. Naturally occurring peptides –glutathione.

Unit-V : Proteins 12 hours

Proteins: Classification based on solubility, shape and function. Determination of amino acid composition of proteins. General properties of proteins, denaturation and renaturation of proteins. Structural organization of proteins- primary, secondary, tertiary and quaternary structures (Eg Hemoglobin and Myoglobin), forces stabilizing the structure of protein.

B.Sc. BIOCHEMISTRY SEMESTER-II SYLLABUS
(w.e.f. 2017-2018)

Module -II: 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 .Structure of Nucleic acids- Watson-Crick DN A double helix structure, introduction to circular DNA, super coiling, 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

Principle and applications of centrifugation techniques- differential, density gradient. Ultracentrifugation-preparative and analytical.

Principle and applications of chromatographic techniques- paper, thin layer, gel filtration, ion- exchange and affinity chromatography.

Electrophoresis- principles and applications of paper, SDS PAGE

Unit-IV: Biochemical Techniques II 12 hours

Colorimetry and Spectrophotometry- Laws of light absorption- Beer-Lambert law. UV and visible absorption spectra, molar extinction coefficient, biochemical applications of spectrophotometer. .Tracer techniques:, use of radioactive isotopes in biology.

Unit- V : Techniques employed in metabolic studies 12 hours

Broad outlines of Intermediary metabolism, methods of investigation, Intermediary metabolism in vivo studies such as Respiratory exchange, Removal of organs and perfusion studies, in vitro studies such as tissue slice techniques; isotope tracer studies, use of inhibitors and antimetabolites.

B.Sc., BIOCHEMISTRY
MODEL QUESTION PAPER (THEORY)
(w.e.f. 2017- 2018)
SEMESTER I: Biomolecules

Time: 3hrs Max. Marks: 60 M

Part-A

Answer any FIVE of the following questions 5×4 M=20 M

Each question carries FOUR marks

1. Henderson- Hasselbalch equation .
2. Water as a biological solvent
3. Structure and biological importance of disaccharides
4. Blood group substances.
5. Structure and functions of cholesterol.
6. Types and functions of lipoproteins
7. Titration curve of glycine
8. Naturally occurring peptides
9. Denaturation and renaturation of proteins
10. Forces stabilizing the structure of protein

Part-B

Answer ALL THE following questions: 5X8 M = 40 M

Each question carries 8 marks

11. Discuss about the role of water as a biological solvent.

OR

Donnan membrane equilibrium. Significance

12. List the chemical reactions of carbohydrates with relevant equations

OR

List the bacterial cell wall polysaccharides discuss about their structural organization in bacterial cell wall

13. Discuss about the structure and classification of lipids.

OR

Structure of biological membrane

14. Discuss about the classification of proteins.

OR

List the chemical reactions of amino acids due to amino group.

15. Explain about the different levels of structural organization of proteins.

OR

Classify the proteins basing on their solubility properties.

B.Sc. BIOCHEMISTRY SEMESTER - I
(w.e.f. 2017-2018)

BIOMOLECULES AND BIO PHYSICAL CONCEPTS

BLUE PRINT FOR QUESTION PAPER

S.No	Type of Questions→	SA 4 marks	SA 4 marks	SA 4 marks	LA 8 marks	LA 8 marks	Total 60 Marks
	Units ↓	Questions given	Questions to attempt	Total marks	Questions to attempt	Total marks	Total 60 Marks
1	UNIT- I: Biophysical concepts	2Q	Student choice any five	8 M	1 Q	8 M	16M
2	UNIT-II : carbohydrates	2Q		8 M	1Q	8M	16M
3	UNIT-III : Lipids	2 Q		8M	1Q	8 M	16M
4	UNIT- IV: Amino acids and peptides	2Q		8 M	1 Q	8 M	16M
5	UNIT- V: Proteins	2Q		8M	1 Q	8 M	16M
	Total Questions to attempt	5 Q		20 M	5 Q	40 M	60 M

B.Sc. BIOCHEMISTRY SEMESTER - II

(w.e.f. 2017- 2018)

Nucleic acids and Biochemical Techniques

BLUE PRINT FOR QUESTION PAPER

S.No	Type of Questions→ / Units ↓	SA 4 marks	SA 4 marks	SA 4 marks	LA 8 marks	LA 8 marks	Total 60 Marks
		Questions given	Questions to attempt	Total marks	Questions to attempt	Total marks	Total 60 Marks
1	UNIT- I: Nucleic acids	3 Q	Student choice any five	12 M	1 Q	8 M	20M
2	UNIT-II : porphyrins	1Q		4 M	1Q	8M	12M
3	UNIT-III : Biochemical techniques I	3 Q		12M	1Q	8 M	20M
4	UNIT- IV: Biochemical techniques II	2Q		8 M	1 Q	8 M	16M
5	UNIT- V: Techniques employed in metabolic studies	1Q		4M	1 Q	8 M	12M
	Total Questions to attempt	5 Q		20 M	5 Q	40 M	60M

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List of practicals

Semester I

PRACTICAL – I:

Qualitative Analysis: Max. Marks: 50

Introduction to Good Laboratory Practice (GLP). Principles of Laboratory Hygiene and Safety.

List of experiments:

1. Preparation of buffers (acidic, neutral and alkaline) and determination of *p*H.
2. Qualitative identification of carbohydrates- glucose, fructose, ribose/xylose, maltose, sucrose, lactose, starch/glycogen.
3. Qualitative identification of amino acids – histidine, tyrosine, tryptophan, cysteine, arginine.
4. Qualitative identification of lipids- solubility, saponification, Liebermann-Burchard test.
5. Preparation of Osazones and their identification.
6. Absorption maxima of coloured substances- *p*-Nitrophenol, Methyl orange.

List of practicals

Semester II

PRACTICAL – II

Max. Marks: 50

1. Isolation of egg albumin from egg white.
2. Isolation of cholesterol from egg yolk.
3. Isolation of starch from potatoes.
4. Isolation of casein from milk.
5. Separation of amino acids by paper chromatography.
6. Separation of serum proteins by paper electrophoresis.
7. Separation of plant pigments by T.L.C.

B.Sc. BIOCHEMISTRY SEMESTER-III SYLLABUS
(w.e.f. 2018 -2019)

ENZYMOLOGY AND BIOENERGETICS

Unit-I: Classification of Enzymes and Structure

1.1Introduction to biocatalysis, differences between chemical and biological catalysis.

1.2 Nomenclature and classification of enzymes.

1.3 Enzyme specificity

1.4 Active site, principles of energy of activation, transition state..

1.5 Interaction between enzyme and substrate- lock and key, induced fit models

1.6. Definition of holoenzyme, apo-enzyme, coenzyme, co-factor.

Unit II: Influence of Physical factors and Inhibitors on Enzyme activity.

2.1 Factors affecting the catalysis- substrate concentration, *pH*, temperature.

2.2 Michaelis -Menten equation for uni-substrate reaction (derivation not necessary)

2.3 Significance of *Km* and Vmax, enzyme units

2.4 Enzyme inhibition –competitive and non-competitive.

Unit-III: Mechanism of enzyme action

3.1 Outline of mechanism of enzyme action- acid-base catalysis, covalent catalysis, electrostatic catalysis,and metal ion catalysis

3.2 Regulation of enzyme activity-allosterism and co-operativity,

3.3 ATCase as an allosteric enzyme.

3.4 Zymogen activation- activation of trypsinogen and chymotrypsinogen.

3.5Isoenzymes (LDH). Multienzymecomplxes (PDH). Ribozyme

Unit- IV: Bioenergetics

4.1Bioenergetics: Thermodynamic principles, chemical equilibria, free energy; enthalpy (H), entropy (S).

4.2 Free energy change in biological transformations in living systems.

4.3 High energy compounds.

4.4 Oxidation-reduction reactions.

B.Sc., BIOCHEMISTRY

MODEL QUESTION PAPER (THEORY)

(w.e.f. 2018- 2019)

SEMESTER-III

Time: 3hrs Max. Marks: 60 M

Part-A

Answer any FIVE of the following questions 5×4 M =20 M

Each question carries FOUR marks

1. Types of enzyme specificity.
2. Structure of active site.
3. Km and Vmax.
4. Isoenzymes.
5. Effect of temperature and pH on enzyme activity.
6. Zymogen activation.
7. Oxidation Reduction reactions
8. Enthalpy & Entropy.
9. Inhibitors of Oxidative Phosphorylation.
10. F_0F_1 ATPase.

Part-B

Answer ALL THE following questions.

Each question carries 8 marks 5X8 M = 40 M

(1). (a) Discuss about the nomenclature & classification of Enzymes.

(or)

(b) Define Holoenzyme and Discus about the interaction between enzyme and substrate.

(2). (a) Write in detail about Michaelis Menton equation for Unisubstrate reaction.

(or)

(b) Define Enzyme inhibition and Discuss about the Competitive and non competitive Inhibition.

(3). (a) Give outlines on Mechanism of Enzyme action.

(or)

(b) Discuss about the regulation of Enzyme activity by taking ATCase as an allosteric enzyme.

(4). (a) Give notes on High energy compound in detail.

(or)

(b) Discuss about Free energy changes in living systems

(5). (a) Write about the organization of components of electron transport chain in Mitochondrial inner membrane.

(or)

(b) Give notes on Mechanism of Oxidative Phosphorylation.

B.Sc. BIOCHEMISTRY SEMESTER – III

(w.e.f. 2018- 2019)

ENZYMOLOGY BIOENERGETICS

BLUE PRINT FOR QUESTION PAPER

S.No	Type of Questions→ Units ↓	SA 4 marks	SA 4 marks	SA 4 marks	LA 8 marks	LA 8 marks	Total 60 Marks
		Questions given	Questions to attempt	Total marks	Questions to attempt	Total marks	Total 60 Marks
1	UNIT- I: Classification of enzymes	3 Q	Student choice any five	12 M	1 Q	8 M	20M
2	UNIT-II : Influence of physical factors and inhibitors on enzyme activity	2 Q		8 M	1Q	8M	16M
3	UNIT-III : Mechanism of enzyme action	2 Q		8 M	1Q	8 M	16M
4	UNIT- IV: Bioenergetics	2 Q		8 M	1 Q	8 M	16M
5	UNIT- V: Biological oxidation in mithochondria	1Q		4 M	1 Q	8 M	12 M
	Total Questions to attempt	5 Q		20 M	5 Q	40 M	80 M

Rajesh

B.Sc. BIOCHEMISTRY SEMESTER IV SYLLABUS
(w.e.f. 2018- 2019)

INTERMEDIARY METABOLISM

Unit- I: Carbohydrate Metabolism

1.1 Concept of anabolism and catabolism.

1.2 Glycolytic pathway, energy yield, Fate of pyruvate- formation of lactate and ethanol, Pasteur effect.

1.3 Citric acid cycle, regulation, energy yield, amphipathic role, Anaplerotic reactions.

1.4 Glycogenolysis and glycogenesis.

1.5 Pentose phosphate pathway, gluconeogenesis.

1.6 Photosynthesis- Light and Dark reactions, Calvin cycle.

1.7 Disorders of carbohydrate metabolism.

Unit- II: Lipid Metabolism

2.1 Catabolism of fatty acids (β- oxidation) with even and odd number of carbon atoms.

2.2 Ketogenesis.

2.3 *De novo* synthesis of fatty acids.

2.4 Biosynthesis and degradation of triacylglycerol .

2.5 Biosynthesis of cholesterol.

2.6 Disorders of lipid metabolism.

Unit- III: Metabolism of Amino acids

3.1 General reactions of amino acid metabolism- transamination, decarboxylation and deamination.

3.2 Urea cycle and regulation.

3.3 Catabolism of carbon skeleton of amino acids- glycogenic and ketogenic amino acids.

3.4 Metabolism of glycine, serine, aspartic acid, methionine, phenylalanine .

3.5 Inborn errors of aromatic and branched chain amino acid metabolism.

Unit- IV: Nitrogen fixation

4.1 Nitrogen cycle,

4.2 Non-biological and biological nitrogen fixation.

4.3 Nitrogenase system.

4.4 synthesis of glutamine and regulatory mechanism of glutamine synthase.

Unit- V: Metabolism of Nucleic acid and heme:

5.1 Biosynthesis and regulation of purine and pyrimidine nucleotides. (De novo and salvage pathways)

5.2 Catabolism of purines and pyrimidines.

5.3 Biosynthesis of deoxyribonucleotides- ribonucleotide reductase and thymidylate synthase and their significance.

5.4 Disorders of nucleotide metabolism- Gout, Lesch-nyhan syndrome .

5.5 Biosynthesis and degradation of heme.

B.Sc., BIOCHEMISTRY
MODEL QUESTION PAPER (THEORY)
(w.e.f. 2018- 2019)
SEMISTER IV

Time: 3hrs Max. Marks: 60 M

Part-A

Answer any FIVE of the following questions 5x4 M=20 M

Each question carries FOUR marks

1. Fate of pyruvate.
2. Anaplerotic reactions.
3. Biosynthesis of Triacyl glycerol.
4. Urea synthesis.
5. Biosynthesis of creatine.
6. Nitrogenase system.
7. Glutamine regulation and synthesis.
8. Disorders of Nucleic acid metabolism.
9. Ribonucleotide reductase complex.

Part-B

Answer **ALL** THE following questions.

Each question carries 8 marks 5X8 M = 40 M

1. a) Discuss about the glycogenesis and glycogenolysis in detail.

OR

b) Write about the reactions of calvin cycle in detail.

2. a) Discuss about the denovo synthesis of fattyacids.

OR

b) Write about β-oxidation reactions and energy yield of fatty acids with even number of carbon atoms.

3. a) Discuss about the general reaction of aminoacid metabolism.

OR

b) Write about the synthesis and degradation of aromatic aminoacid-phenylalanine and give note on inborn errors of aromatic aminoacids metabolism.

4. a) Discuss in detail about Nitrogen cycle.

OR

b) What is biological nitrogen fixation . Explain about nitrogenase enzyme system.

5. a) Give detailed pathway for the purine nucleotide synthesis.

OR

b) Write notes on biosynthesis and degradation of heme.

B.Sc. BIOCHEMISTRY SEMESTER - IV
(w.e.f. 2018- 2019)

INTERMEDIARY METABOLISM

BLUE PRINT FOR QUESTION PAPER

S.No	Type of Questions→ / Units ↓	SA 4 marks	SA 4 marks	SA 4 marks	LA 8 marks	LA 8 marks	Total 60 Marks
		Questions given	Questions to attempt	Total marks	Questions to attempt	Total marks	Total 60 Marks
1	UNIT- I: Carbohydrate Metabolism	3 Q	Student choice any five	12 M	1 Q	8 M	20M
2	UNIT-II : Lipid metabolism	2 Q		8 M	1Q	8M	16M
3	UNIT-III : Metabolism of amino acids	2 Q		8 M	1Q	8 M	16M
4	UNIT- IV: Nitrogen fixation	1Q		4 M	1 Q	8 M	12M
5	UNIT- V: Metabolism of nucleic acid and heme	2Q		8 M	1 Q	8 M	16M
	Total Questions to attempt	5 Q		20 M	5 Q	40 M	60 M

List of practicals

Semester III

PRACTICAL – III

Max. Marks: 50

1. Assay of amylase
2. Assay of urease
3. Assay of catalase.
4. Assay of phosphatase
5. Determination of optimum temperature for amylase.
6. Determination of optimum *p*H for phosphatise

List of practicals

Semester IV

PRACTICAL – IV

Max. Marks: 50

1. Estimation of amino acid by Ninhydrin method.
2. Estimation of protein by Biuret method.
3. Estimation of protein by Lowry method.
4. Estimation of glucose by DNS method.
5. Estimation of glucose by Benedict's titrimetric method

List of Recommended Books for Biochemistry

General Biochemistry

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. Principles of Biochemistry: General Aspects-Smith, E. L., Hill, R.L. Lehman, 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 Doi.R.H., John Wiley & Sons .
7. Harper.s Illustrated Biochemistry . Murray, R.K., Granner.D.K. & Rodwell,V.W., McGraw-Hill
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 Ratna Kumari. D, Kalyani Publishers.
12. Biochemistry- The Molecular Basis of Life . McKee. T and McKee, J. R. McGraw-Hill.
13. Biophysical Chemistry by C.R. Cantor and P.R. Schimmel
14. Physical Biochemistry by K.E.van Holde, C. Johnson and P. S. Ho
15. Biophysical Chemistry by Upadhyay
16. Biophysical Chemistry by Gurtu

Enzymology :

1. Fundamentals of Enzymology – Price.N.C,andStevens.L., Oxford University Press.
2. Understanding Enzymes – Palmer.T., Ellis Harwood.
3. Enzymes – Biochemistry, Biotechnology, Clinical Chemistry – Palmer.T., Affiliated East-West

INTERNAL ASSESSMENTS

(w.e.f. 2017- 2018)

A total of 40 Marks is allotted for internals in Dept. of **Biochemistry**, which facilitate continuous assessment of students, to know their progress. It also facilitates the teacher to take necessary remedial activity for slow learners and to encourage the bright students by giving respective tasks.

Mid Semesters: Among the 40 marks of internals, 10 marks are given for common Written test as Mid sem exam. Two mid sem exams each of 25 marks will be conducted and the average is taken.

Two assignments are conducted for 10 marks,5 marks will be given for each assignment

5 marks are allotted for Student Seminars and 5 marks are allotted for continuous assessment including viva/PPT

10 marks are allotted for project work

Division of 40 Marks of Internal assessment :

1	2	3	4	5	6	5	6
1st Mid semester exam	2nd Mid semester exam	Total of Mid semester exams	Assignments	Student Seminars	Continuous assessment including viva	project	Total Marks of Internal
Written test	Written test	Average of 1 & 2 exams	2 Assignments each for 5 marks				
25marks	25 marks	10 marks	10 marks	5 marks	5 marks	10 marks	40 marks

Panel of examiners & Paper setters

S.No	Name	Qualification	Designation & Address	Contact No.
1.	Dr. J. Rajeswari	M.Sc, Ph.d	Asst. Professor, Dept. of Biochemistry, ANU, Guntur	9494595897
2.	Dr.P. Kiranmayi	M.Sc, M.Phil, Ph.D	Asst. Professor, Dept. of Biochemistry, ANU, Guntur	9441748123
3.	Mrs .B. Dorka vijaya kumari	M.Sc,B.Ed	Lecturer in Bio-Chemistry, Govt. College for Women ,GUNTUR Email:dorca.vj@gmail.c	Phone :9963928874
4.	Mrs.D.Vijayasree	M.Sc. B.Ed	Lecturer in Bio-Chemistry. Govt.college for women. GUNTUR Vijayasree.d@gmail.com	9177814172
5	Mrs. K. Ratna Kumari	M.Sc ,M.Ed (ph.D)	Asst.Professor (contractual) Dept.of.Biochemistry, Krishna university Machilipatnam, Krishna district.	9848441153
6.	Mr. K.Yesuratnam	M.Sc, B.Ed	HOD , Dept. of Biochemistry Vignan Degree College, Guntur.	9440754416
7.	Mrs. B. Dhanasree	M.Sc., M.Phil	I/c. Dept. of Biochemistry KVR Govt. Degree College for Women, Kurnool.	9247864712
8.	Mr. Satheesh Kumar. B	M.Sc., (Ph.D)	Lecturer in Biochemistry Dept of Chemistry Sri ABR GDC, Repalle, Guntur.	9951361376
9.	Mrs. Padmaja. M	M.Sc	Lecturer in Biochemistry Dept of Chemistry GDC, Badrachalam Khammam.	9985748090
10.	Mrs. Sarala	M.Sc	Lecturer in Biochemistry Silver Jubilee College (Autonomous), Kurnool.	8125877332

Practical examination pattern for semester end examinations
(w.e.f. 2017- 2018)

Practical – I :

Practical examination in Dept. of Biochemistry is held before I st and 2nd semester exams twice in a year to test practical skills among the students.

Total marks allotted for practical are 50 marks which are divided as 25 for internal and 25 for external for the duration of three hours in each semester

The division of marks is as follows

External

Major Experiment	Minor Experiment	To identify the the instrument to give the working principle	Record	VIVA
8 Marks	4 Marks	2 X 2 ½ =5 Marks	5Marks	3Marks

Internal

Record	Project viva	Continuous assessment
10 marks	10 marks	5 marks