

Govt. T. R. S. (Autonomous) College Rewa (M.P.)

(Affiliated to A.P.S. University Rewa)

Department of Chemistry

Syllabus for B.Sc. (Hons.) Chemistry on CBCS

Session 2023-24

Part A - Introduction			
Program: UG	Class: B.Sc. (Hons) Chemistry	Semester: IV	Session: 2023-24
Subject: Chemistry (Honours)			
1	Course code	CHGT-04	
2	Course title	MOLECULES OF LIFE	
3	Course type	Generic Elective Course	
4	Pre-requisite (if any)	This course is Open for All	
5	Course Objective	The aim of this course is to make students understand molecules of life concepts, terminology, properties of life systems, and their correlation with other branches of chemistry and make them able to apply concepts to the system of variable compositions and properties.	
6	Course Learning Outcomes (CLO)	By the study of the this paper Students will be able to :	
7	Credit Value	4	
8	Total Marks	Max. Marks (40+60): CCE+ESE	Min. Passing Marks:
Part B – Content of the course			
Total No. of Lectures-Tutorials-Practical (4 hours per week):			
L-T-P: 45-0-00			
Unit	Topic		No. of Lectures
1	Carbohydrates Classification of carbohydrates, reducing and non-reducing sugars, General properties of glucose and fructose, their open chain structure. Epimers, mutarotation and anomers. Determination of configuration of Glucose (Fischer proof). Cyclic structure of glucose. Haworth projections. Cyclic structure of fructose. Linkage between monosachharides, structure of disacharrides (sucrose, maltose, lactose) and polysacharrides (starch and cellulose) excluding their structure elucidation		10
2	Amino Acids, Peptides and Proteins Classification of Amino Acids, Zwitterion structure and Isoelectric point. Overview of Primary, Secondary, Tertiary and Quaternary structure of proteins. Determination of primary structure of peptides, determination of N-terminal amino acid (by DNFB and Edman method) and C-terminal amino acid (by thiohydantoin and with carboxypeptidase enzyme).		10

3	Enzymes and correlation with drug action Mechanism of enzyme action, factors affecting enzyme action, Coenzymes and cofactors and their role in biological reactions, Specificity of enzyme action (including stereospecificity), Enzyme inhibitors and their importance, phenomenon of inhibition(Competitive and Noncompetitive inhibition including allosteric inhibition). Drug action-receptor theory. Structure –activity relationships of drug molecules.	10
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Part C – Learning Resources

Text Books, Reference Books, Other resources

Suggested Reading:

- Morrison, R. T. & Boyd, R. N. Organic Chemistry, Dorling Kindersley (India) Pvt. Ltd. (Pearson Education).
- Finar, I. L. Organic Chemistry (Volume 1), Dorling Kindersley (India) Pvt. Ltd. (Pearson Education).
- Finar, I. L. Organic Chemistry (Volume 2), Dorling Kindersley (India) Pvt. Ltd. (Pearson Education).
- Nelson, D. L. & Cox, M. M. Lehninger's Principles of Biochemistry 7th Ed., W. H. Freeman.
- Berg, J.M., Tymoczko, J.L. & Stryer, L. Biochemistry, W.H. Freeman, 2002.

Suggested equivalent online:

Part D – Assessment & Evaluation

Suggested Continuous Evaluation Method

Any remark / suggestion:

This course can be opted as an elective by the students of the following subjects:

Open for All

Continuous & Comprehensive Evaluation shall be based on allotted Assignment and Class Test

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Session 2023-24

Part A - Introduction			
Program: UG	Class: B.Sc. (Hons) Chemistry	Semester: IV	Session: 2023-24
Subject: Chemistry (Honours)			
1	Course code	CHGP-04	
2	Course title	MOLECULES OF LIFE (PRACTICAL)	
3	Course type	GE	
4	Pre-requisite (if any)	To study this course, a student must have had the subject Chemistry in Certificate	
5	Course Objective	The aim of this course is to make students understand molecules of life concepts, terminology, properties of life systems, and their correlation with other branches of chemistry and make them able to apply concepts to the system of variable compositions and properties	
6	Course Learning Outcomes (CLO)	By the study of the this paper Students will be able to : <ul style="list-style-type: none">•	
7	Credit Value	2	
8	Total Marks	Max. Marks (60+40):	Min. Passing Marks:
Part B – Content of the course			
Total No. of Lectures-Tutorials-Practical (4 hours per week):			
L-T-P: 00-0-15			
Unit	Topic		No. of Lectures
1	1. Separation of amino acids by paper chromatography 2. To determine the concentration of glycine solution by formylation method. 3. Study of titration curve of glycine 4. Action of salivary amylase on starch 5. Effect of temperature on the action of salivary amylase on starch. 6. To determine the saponification value of an oil/fat. 7. To determine the iodine value of an oil/fat 8. Differentiate between a reducing/ nonreducing sugar. 9. Extraction of DNA from onion/cauliflower 10. To synthesise aspirin by acetylation of salicylic acid and compare it with the ingredient of an aspirin tablet by TLC.		15

Part C – Learning Resources**Text Books, Reference Books, Other resources****Suggested Reading:**

- Furniss, B.S.; Hannaford, A.J.; Rogers, V.; Smith, P.W.G.; Tatchell, A.R. Vogel's Textbook of Practical Organic Chemistry, ELBS.
- Ahluwalia, V.K. & Aggarwal, R. Comprehensive Practical Organic Chemistry, Universities Press.

Suggested equivalent online:**Part D – Assessment & Evaluation****Suggested Continuous Evaluation Method**

Any remark / suggestion:

This course can be opted as an elective by the students of the following subjects:

Continuous & Comprehensive Evaluation shall be based on allotted Assignment and Class Test