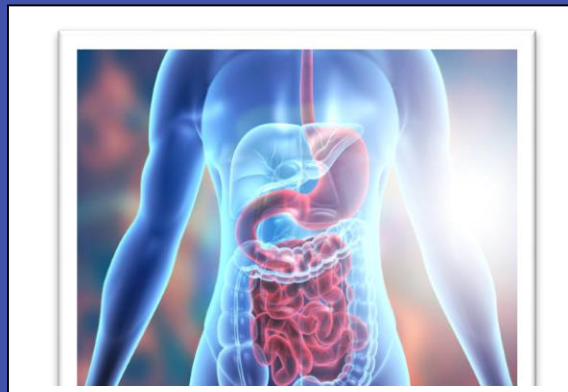


# SWAT MEDICAL COLLEGE SWAT

DEPARTMENT OF MEDICAL EDUCATION



## GASTROINTESTINAL, HEPATOBILIARY AND METABOLISM



2ND YEAR MBBS

BLOCK: E

CLASS OF: 2022-27

DURATION: 8 WEEKS

FROM: 15 MAY TO 2 JULY

STUDENT NAME

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# 1 Academic Calendar

Tentative Annual Calendar MBBS – 2023-24 Swat Medical College, Swat																
Activity/ Events	Week	Date	1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	4 <sup>th</sup> Year	5 <sup>th</sup> Year									
Orientation Week	1	12 <sup>th</sup> to 16 <sup>th</sup> Feb	<b>Foundation-I</b> (8 weeks) 22 <sup>nd</sup> March, Module Exam	<b>Neurosciences-IA</b> (6 weeks) 22 <sup>nd</sup> March, Module Exam	<b>Foundation II</b> (3 weeks) 22 <sup>nd</sup> March, Module Exam	<b>Neurosciences – II</b> (8 weeks) 25 <sup>th</sup> and 26 <sup>th</sup> March Block J Exam	<i>Previous 5<sup>th</sup> Year Preparatory leaves and annual exam</i>									
Regular Classes	2	19 <sup>th</sup> to 23 <sup>rd</sup> Feb														
Regular Classes	3	26 <sup>th</sup> Feb to 1 <sup>st</sup> March														
Regular Classes	4	4 <sup>th</sup> to 8 <sup>th</sup> March														
Regular Classes	5	11 <sup>th</sup> to 15 <sup>th</sup> March														
Regular Classes	6	18 <sup>th</sup> to 22 <sup>nd</sup> March	<b>Blood &amp; Immunology</b> (3 weeks) 6 <sup>th</sup> & 7 <sup>th</sup> May Block A exam	<b>Neurosciences-IB</b> (5 weeks) 13 <sup>th</sup> & 14 <sup>th</sup> May Block D	<b>Infection &amp; Inflammation</b> (6 weeks) 6 <sup>th</sup> May to 7 <sup>th</sup> May Block G exam	<b>GIT and Hepatobiliary – II</b> (9 weeks) 10 <sup>th</sup> and 11 <sup>th</sup> June Block K Exam	<b>Foundation-III</b> (2 weeks) 22 <sup>nd</sup> March Module Exam									
Regular Classes	7	25 <sup>th</sup> to 29 <sup>th</sup> March					<b>Blood &amp; Immunology</b> (2 weeks) 5 <sup>th</sup> April Module Exam									
Regular Classes	8	1 <sup>st</sup> to 5 <sup>th</sup> April					<b>MSK.I</b> (8 weeks) 1 <sup>st</sup> & 2 <sup>nd</sup> July Block-B Exam	<b>GIT, Hepatobiliary &amp; Metabolism-</b> (8 weeks) 1 <sup>st</sup> & 2 <sup>nd</sup> July	<b>Multisystem</b> (5 weeks) Module Exam 31 <sup>st</sup> May	<b>Renal – II Module</b> (4 weeks) 1 <sup>st</sup> and 2 <sup>nd</sup> July Module Exam	<b>MSK.III</b> (2 weeks) 06 <sup>th</sup> & 07 <sup>th</sup> May Block N exam					
<b>Spring Break/Eid ul Fitr</b>	9	8 <sup>th</sup> to 12 <sup>th</sup> April									<b>Cardiorespiratory-III</b> (3 weeks) 3 <sup>rd</sup> & 4 <sup>th</sup> June Block O Exam					
<b>Sports Week</b>	10	15 <sup>th</sup> to 19 <sup>th</sup> April									<b>Renal- III Module</b> (2 weeks) 14 <sup>th</sup> June Module Exam					
Regular Classes	11	22 <sup>nd</sup> to 26 <sup>th</sup> April			<b>Endocrine &amp; Reproduction-III</b> (3 weeks) 29 <sup>th</sup> & 30 <sup>th</sup> July Block P Exam											
Regular Classes	12	29 <sup>th</sup> to 3 <sup>rd</sup> May			<b>CVS.I</b> (3 weeks) 23 <sup>rd</sup> August Module Exam	<b>Renal</b> (3 weeks) 12 <sup>th</sup> to 13 <sup>th</sup> August Block E					<b>MSK-II</b> (5 weeks) 2 <sup>nd</sup> Sep 3 <sup>rd</sup> Sep Block H exam	<b>Endocrine and Reproduction – II</b> (8 weeks) 16 <sup>th</sup> and 17 <sup>th</sup> September Block-L exam	<b>Neurosciences – III</b> (3 weeks) 16 <sup>th</sup> August Module Exam			
Regular Classes	13	6 <sup>th</sup> to 10 <sup>th</sup> May											<b>GIT &amp; Hepatobiliary</b> (2 weeks) 6 <sup>th</sup> Sep Module Exam			
Regular Classes	14	13 <sup>th</sup> to 17 <sup>th</sup> May											<b>Reproduction-I</b> (4 weeks) 30 <sup>th</sup> Sep 1 <sup>st</sup> Oct	<b>CVS.II</b> (3 weeks) 20 <sup>th</sup> September Module exam	<b>EYE and ENT</b> (6 weeks) 14 <sup>th</sup> to 16 <sup>th</sup> Oct Block M1 & M2 Exam	<b>Multisystem.II</b> (4 weeks) 7 <sup>th</sup> -8 <sup>th</sup> Oct Block Q Exam
Regular Classes	15	20 <sup>th</sup> to 24 <sup>th</sup> May														
Regular Classes	16	27 <sup>th</sup> May to 31 <sup>st</sup> May														
Regular Classes	17	3 <sup>rd</sup> to 7 <sup>th</sup> June														
Regular Classes	18	10 <sup>th</sup> to 14 <sup>th</sup> June														
<b>Eid-ul-Adha Holidays</b>	19	17 <sup>th</sup> to 21 <sup>st</sup> June	<b>CVS.I</b> (3 weeks) 23 <sup>rd</sup> August Module Exam	<b>Endocrine-I</b> (4 weeks) 6 <sup>th</sup> Sep	<b>MSK-II</b> (5 weeks) 2 <sup>nd</sup> Sep 3 <sup>rd</sup> Sep Block H exam	<b>Endocrine and Reproduction – II</b> (8 weeks) 16 <sup>th</sup> and 17 <sup>th</sup> September Block-L exam	<b>Neurosciences – III</b> (3 weeks) 16 <sup>th</sup> August Module Exam									
Regular Classes	20	24 <sup>th</sup> to 28 <sup>th</sup> June						<b>GIT &amp; Hepatobiliary</b> (2 weeks) 6 <sup>th</sup> Sep Module Exam								
<b>Summer Vacations</b>	21-23	3 <sup>rd</sup> to 21 <sup>st</sup> July						<b>Respiratory-I</b> (4 weeks) 23 <sup>rd</sup> -24 <sup>th</sup> SEP Block-C Exam	<b>Reproduction-I</b> (4 weeks) 30 <sup>th</sup> Sep 1 <sup>st</sup> Oct	<b>CVS.II</b> (3 weeks) 20 <sup>th</sup> September Module exam	<b>EYE and ENT</b> (6 weeks) 14 <sup>th</sup> to 16 <sup>th</sup> Oct Block M1 & M2 Exam	<b>Multisystem.II</b> (4 weeks) 7 <sup>th</sup> -8 <sup>th</sup> Oct Block Q Exam				
Regular Classes	24	22 <sup>nd</sup> to 26 <sup>th</sup> July														
Regular Classes	25	29 <sup>th</sup> July to 2 <sup>nd</sup> Aug														
Regular Classes	26	5 <sup>th</sup> to 9 <sup>th</sup> Aug														
Regular Classes	27	12 <sup>th</sup> to 16 <sup>th</sup> Aug														
Regular Classes	28	19 <sup>th</sup> 23 <sup>rd</sup> Aug	<b>PREPARATORY LEAVES</b>	<b>PREPARATORY LEAVES</b>	<b>PREPARATORY LEAVES</b>	<b>PREPARATORY LEAVES</b>	<b>PREPARATORY LEAVES</b>									
Regular Classes	29	26 <sup>th</sup> to 30 <sup>th</sup> Aug														
Regular Classes	30	2 <sup>nd</sup> to 6 <sup>th</sup> Sep														
Regular Classes	31	9 <sup>th</sup> to 13 <sup>th</sup> Sep														
Regular Classes	32	16 <sup>th</sup> to 20 <sup>th</sup> Sep														
Regular Classes/ Preparatory Leaves	33	23 <sup>rd</sup> to 27 <sup>th</sup> Sep	<b>PREPARATORY LEAVES</b>	<b>PREPARATORY LEAVES</b>	<b>PREPARATORY LEAVES</b>	<b>PREPARATORY LEAVES</b>	<b>PREPARATORY LEAVES</b>									
Regular Classes/ Preparatory Leaves	34	30 <sup>th</sup> Sep to 4 <sup>th</sup> Oct														
Regular Classes/ Preparatory Leaves	35	7 <sup>th</sup> to 11 <sup>th</sup> Oct														
Regular Classes/ Preparatory Leaves	36	14 <sup>th</sup> to 18 <sup>th</sup> Oct														
Regular Classes/ Preparatory Leaves	37	21 <sup>st</sup> to 25 <sup>th</sup> Oct														
Regular Classes/ Preparatory Leaves	38	28 <sup>th</sup> Oct to 1 <sup>st</sup> Nov	<b>PREPARATORY LEAVES</b>	<b>PREPARATORY LEAVES</b>	<b>PREPARATORY LEAVES</b>	<b>PREPARATORY LEAVES</b>	<b>PREPARATORY LEAVES</b>									
Regular Classes/ Preparatory Leaves	39	4 <sup>th</sup> to 8 <sup>th</sup> Nov														
Regular Classes/ Preparatory Leaves	40	11 <sup>th</sup> to 15 <sup>th</sup> Nov														
Regular Classes/ Preparatory Leaves	41	18 <sup>th</sup> to 22 <sup>nd</sup> Nov														
Regular Classes/ Preparatory Leaves	42	25 <sup>th</sup> to 29 <sup>th</sup> Nov														
Regular Classes/ Preparatory Leaves	42	2 <sup>nd</sup> to 6 <sup>th</sup> Dec	<b>Annual Exam as per KMU schedule.</b>	<b>Annual Exam as per KMU</b>	<b>PREPARATORY LEAVES</b>	<b>PREPARATORY LEAVES</b>	<b>PREPARATORY LEAVES</b>									
Regular Classes/ Preparatory Leaves	43	9 <sup>th</sup> to 13 <sup>th</sup> Dec														
Regular Classes/ Preparatory Leaves	44	16 <sup>th</sup> to 20 <sup>th</sup> Dec														
Regular Classes/ Preparatory Leaves	45	23 <sup>rd</sup> to 27 <sup>th</sup> Dec														
Regular Classes/ Preparatory Leaves	46-49	November 2024														
Regular Classes/ Preparatory Leaves	50-53	December 2024	<b>Winter vacation</b>	<b>Winter vacation</b>	<b>Annual Exam as per KMU schedule.</b>	<b>PREPARATORY LEAVES</b>	<b>PREPARATORY LEAVES</b>									
Regular Classes/ Preparatory Leaves	54-57	January 2025														
	Start of new academic session 2025-26		February 2025	February 2025	February 2025	February 2025	March 2025									

Note: The given dates are tentative and may be subject to change as needed/demanded. The KMU will share the annual exam schedule at the end of the current session.

Dear Student

The Department of Medical Education (DME) has successfully conducted faculty training for the curation of study guides. In accordance with the guidelines set by Khyber Medical University, Peshawar, this study guide has been meticulously developed by the respective block coordinator. For any queries or concerns, kindly refer to the "Query and Troubleshooting" section for contact information.

Please be advised that the timetables provided in the study guides are tentative, and the final versions will always be accessible on the official website, notice boards, and social media platforms.

It is crucial to acknowledge that this guide is subject to continuous improvement, aligning with updates to module learning objectives and blueprints by KMU Peshawar. It is noteworthy that the learning objectives and blueprints outlined in this guide represent an enhanced and revised version of those originally provided by KMU.

For more information on modules and examination blueprints, please visit  
<https://kmu.edu.pk/examination/guidelines>.

Your login link of official website:  
[https://mis.swatmedicalcollege.edu.pk/login/student\\_login](https://mis.swatmedicalcollege.edu.pk/login/student_login)

## 2 List Of Abbrevation

<b>Anat-SGD</b>	Small Group Discussion in Anatomy	<b>G.Med-L</b>	General Medicine Lecture
<b>Bio-L</b>	Biochemistry Lecture	<b>OSPE</b>	Objectively Structured Practical Examination
<b>Bio-P</b>	Biochemistry Practical	<b>Paeds-L</b>	Pediatrics Lecture
<b>Bio-SGD</b>	Small Group Discussion in Biochemistry	<b>Patho-L</b>	Pathology Lecture
<b>C.Med-L</b>	Community Medicine Lecture	<b>Phar-L</b>	Pharmacology Lecture
<b>DSL</b>	Directed Self Learning	<b>Phy-L</b>	Physiology Lecture
<b>FDT</b>	Film/Demonstration/Tutorial	<b>Phy-P</b>	Physiology Practical
<b>F.Med-L</b>	Forensic Medicine Lecture	<b>Phy-SGD</b>	Small Group Discussion in Physiology
<b>G.Anat-L</b>	Gross Anatomy Lecture	<b>SDL</b>	Self-Directed learning
<b>Histo-P</b>	Histology Practical	<b>SAQs</b>	Short Answer Questions
<b>MCQs</b>	Multiple Choice Questions	<b>SEQs</b>	Short Essay Questions
<b>Med.Edu-L</b>	Medical Education Lecture	<b>SGDs</b>	Small Group Discussions
<b>PRIME</b>	Professionalism and communication skills, Research, Identity formation, Management and leadership, Ethics		

### 3 Module Committee:

s.no	Name	Department	Role
1.	Prof. Dr. Aziz Ahmad	Dean / principal	
2.	Dr. M Junaid Khan	DME	Director
<b>Module Team</b>			
3.	Prof. Dr. Rashid Ahmad	Physiology	Chairman MPC-1
4.	Assoc. Prof. Dr Humaira Ali	Anatomy	Block co-ordinator
5.	Prof. Dr. Muhammad Khan	Anatomy	Member
6.	Assoc. Prof. Dr. Obaid ur Rahman	Bio-Chemistry	Member
7.	Dr. Fiza Iqbal	Physiology	Member
8.	Asst. Prof. Dr. Amanullah	Physiology	Member
9.	Asst. Prof. Dr Sara	Bio-Chemistry	Member
10.	Dr. Ubaid Ullah	PRIME	Member
11.		Pathology	Co-opted Member
12.		Community Medicine	Co-opted Member
13.		Pharmacology	Co-opted Member



## 4 Recommended List Of Icons



**Introduction To Case**



**For Objectives**



**Critical Questions**



**Assessment**



**Resource Material**

## 5 Mission/ Vision of the College

### 5.1 Mission Statement of the Institution:

To impart quality medical education through evidence based teaching incorporating professionalism, patient safety, research, critical thinking, ethics and leadership.

### 5.2 Vision Statement of the institution:

To be a center of excellence in medical education, patient care and research globally.

### 5.3 Exit competencies/outcomes :

We need integration because we want to produce medical graduates with desirable exit competencies for a physician. Faculty of Swat Medical College has set following outcomes that by the end of the 5-year MBBS program, graduates should be able to:

1. Diagnose and treat common conditions safely, efficiently and apply knowledge of medical sciences and health principles to the ailing humanity.
2. Refer life threatening and uncommon conditions to relevant experts as soon as possible
3. Demonstrate effective communications skills with all members of the health care system
4. Demonstrate professional ethics and behaviour towards all members of the health care system
5. Demonstrate critical thinking, problem solving and decision-making skills
6. Work productively in a multi-professional system
7. Exercise basic steps to practice Evidence-based Medicine Work in a team to organize research studies
8. Demonstrate ability to be pro-active in updating his knowledge and skills and in improving professionally.



## 6 Overview of the Module/ Preface

Congratulations and welcome to the Block E of 2<sup>nd</sup> year MBBS, comprising of gastrointestinal and renal modules, where the overarching goal is to provide high-quality educational program for acquisition of knowledge, skills, and behaviors necessary for the future doctor. Throughout the program, emphasis is placed on integrating theoretical knowledge with practical applications, ensuring a comprehensive didactic experience. The core themes of both the modules are meticulously designed to foster an in-depth and thorough understanding of the gastrointestinal and renal systems. Students will gain hands-on experience through dissections, small group interactive sessions, case based discussions and practicals in diverse settings such as museum, dissection hall and skill labs providing a well-rounded education.

The study guide acts as an indispensable tool for the students, offering clarity on module contents, instructional methodologies, faculty guidance, and assessment criteria. It serves as a crucial reference for assessment and evaluation by clearly outlining the theory and practical components that will be assessed, along with the corresponding assessment tools, which may include MCQS, SEQs and OSPE. This transparency enables students to align their efforts with the evaluation criteria, promoting a sense of accountability and preparation for success in their academic pursuits. As future medical professionals, graduates can look forward to diverse career pathways, from clinical practice to research, with opportunities in various disciplines worldwide. In essence, by actively engaging with the information provided, students can navigate their academic journey with confidence and purpose, maximizing their learning experience in the relevant subject, ethical values and professionalism.

**Being the block coordinator, I wish you all the best.**



“GIT & Hepatobiliary Module” is a nine-week module with eight themes. Maximum effort has been made to make this module interesting and interactive, so you would be able to integrate basic sciences knowledge with clinical subjects and enjoy learning.

## 7.2 Rationale:

### 7.3 Organization of the Study guide:

Block E is a second block of 2nd year MBBS, with GIT and renal modules. GIT module consists of nine weeks duration, with eight themes, each one based on a real-life complaint and developed around common GIT disorders. These themes will act as trigger to enhance the clinical relevance and will boost your problem-solving abilities.

S. No	Title of GIT themes	Duration
1.	Painful swallowing	1 week
2.	Abdominal pain	2 weeks
3.	Jaundice	1 week
4.	Diarrhea and Constipation	1 week
5.	Bleeding Per Rectum	1 week
6.	Hyperglycemia (Carbohydrate metabolism)	1 week
7.	Obesity (Lipid metabolism)	4 days
8.	Wasting (Protein metabolism)	8 days

### BLOCK FRAMEWORK: 2nd YEAR MBBS

Block D			Block E			Block F			P R E P A R A T I O N  P R E P A R A T I O N  P R E P A R A T I O N	P R E P A R A T I O N  P R E P A R A T I O N  P R E P A R A T I O N	P R E P A R A T I O N  P R E P A R A T I O N  P R E P A R A T I O N
Module 6	Module 7		Module 8	Module 9		Module 10	Module 11				
Neurosciences IA 7 weeks	Neurosciences IB 6 weeks	B L O C K  D  E X A M	GIT & Hepatobiliary 9 weeks	Renal 3 weeks	B L O C K  E  E X A M	Endocrinology 3 weeks	Reproduction 3 weeks	B L O C K  F  E X A M			

GIT Module 2nd Year MBBS								
S.No	Subjects/ Disciplines	Large Group Format			Small Group Format (Batch A, Batch B, Batch C)			
		Lectures	DSLs	PBL/CPC	Practical's	SGDs	Dissection	SDLs
1.	Anatomy	32	8	3	7	12	--	18
2.	Physiology	27	8	2	10	2	--	
3.	Biochemistry	46	8		10	4	--	
4.	Pharmacology	5	--	--	--	--	--	
5.	Pathology	4	--	--	--	--	--	
6.	Forensic Medicine	2	--	--	--	--	--	
7.	Community Medicine	3	--	--	--	--	--	
8.	PRIME	5	--	--	--	--	--	
9.	General Medicine	5	--	--	--	--	--	
10.	Pediatrics	1	--	--	--	--	--	
11.	Ophthalmology		--	--	--	--	--	
12.	ENT	1	--	--	--	--	--	
13.	General Surgery	5	--	--	--	--	--	
14.	Neurosurgery		--	--	--	--	--	
15.	Plastic Surgery		--	--	--	--	--	
16.	Radiology		--	--	--	--	--	
17.	Islamiyat		--	--	--	--	--	
18.	Pak. Study	7	--	--	--	--	--	
19.	IT		--	--	--	--	--	
	Sub Totals	142	24	5	27	18	--	18
	Total Contact Hours = 234							

## 7.4 Teaching Strategies:

An integrated curriculum is designed to fuse different subject areas, experiences, and real-life knowledge together to make a more fulfilling and tangible learning environment for students. When you look at the time table of the module, you will find that the mode of instruction is going to be multi-pronged with small group discussions (SGD), large class format (LCF), practical & skill lab sessions.



### Subject Integration

The study guide is planned to get thorough going benefit from the themes and clinical relevance to achieve the learning objectives.

**Horizontal Integration:** Lectures on relevant topics are horizontally integrated with other basic science subjects in year 1 & 2 of the medical program

**Vertical Integration:** is done through clinical correlation of basic sciences through clinical lectures.

### Lectures

Lecturing or large group format (LGF) teaching is didactic one-way teaching of concepts by subject expert to a large group of learners. They are an efficient means of transferring knowledge and concepts to large groups. They can be used to stimulate interest, explain concepts, provide core knowledge, and direct student learning.

### Small group discussions (SGD)

Small-group discussion is a student-centered methodology, which allows students to actively involve and be partners in the teaching-learning process. Students interact with peers and instructors, discussing, and sharing ideas in a group of 6 to 10.

## 7.5 Assessment strategies

Assessments within the MBBS program at STMC consist of both formative and summative evaluations. These assessments are integral to monitoring student progress and academic performance.

### A. Formative Assessment:

Formative assessments, accounting for 10% of the total marks assigned to each block, serve as ongoing evaluations designed to provide feedback and facilitate learning. The allocation of this 10% can be determined in accordance with the blueprint of KMU and further distributed as per the academic council's recommendations at STMC. Formative assessments are conducted after the completion of each module, ensuring that students receive timely feedback to enhance their understanding and performance.

### B. Summative Assessment:

Summative assessments, which comprise the majority of the assessment weighting (90% of all marks), are conducted and overseen by KMU, as part of the annual examination process. The summative annual examination is organized and conducted by KMU, which carries out the evaluation and grading. This summative assessment evaluates students' comprehensive understanding of the curriculum and accounts for a significant portion of their final scores.

### C. Assessment tools:

#### Multiple Choice Questions (MCQ)

The MCQ is a restricted response, objective assessment instrument. It contains a stem or a description of a problem, lead-in, or the question, followed by four or five options in outline format.

#### Short Answer Questions (SAQ)

Short answer question is an open ended, semi-structured question format. A structured, pre-determined marking scheme improves objectivity. The questions can incorporate clinical scenarios.

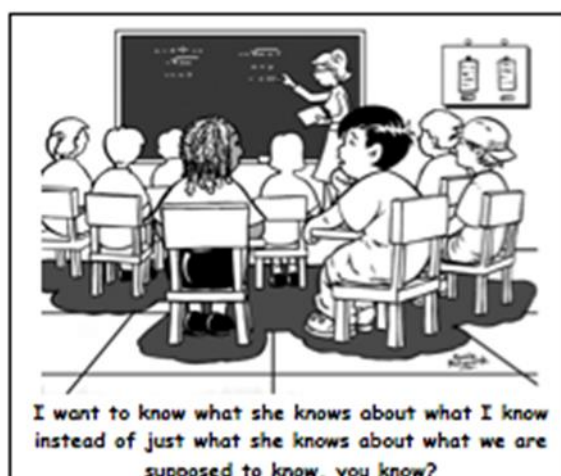
#### Objective Structured Clinical Examination (OSCE)

OSCE consists of multiple stations (usually 15-20) where each candidate is asked to perform a defined task such as taking a focused history or performing a focused examination of a particular system. A standardized marking scheme specific for each case is used.

## 7.6 Feedback mechanism and summary

Students can give written feedback of any faculty through LMS or Feedback forms at the end of a particular session or a module.

### ***Effective Feedback, Effective Learning!***



**THE STUDY GUIDE:**

- Inform students how student learning program of the integrated modular system has been organized.
- Help students organize and manage their studies throughout the module.
- Guide students on assessment methods, rules and regulations.
- Communicates summarized information on the organization and management of the module.
- This will help the student to contact the right person in case of any difficulty.
- Defines the objectives which are expected to be achieved at the end of the module.
- Identifies the learning strategies such as lectures, small group teachings, clinical skills, demonstration, tutorial and case-based learning that will be implemented to achieve the module objectives.
- Provides a list of learning resources such as books, computer-assisted learning programs, web- links, journals, for students to consult in order to maximize their learning.
- Highlights information on the contribution of continuous and block examinations on the student's overall performance.
- Includes information on the assessment methods that will be held to determine every student's achievement of objectives.
- Focuses on information pertaining to examination policy, rules and regulations.

**COMPETENCIES:**

**Competencies focused in Year I and II are: -**

- Medical Knowledge
- Problem solving
- Procedural skills
- Communication skills
- Empathy
- Professionalism
- Leadership and Management skills
- Research skills

**OUTCOMES:**

This curriculum meets the standards of Pakistan Medical Commission and our students, on completion of program will develop required competencies as defined worldwide in a graduate doctor. By the end of first year, students should be able to:

- Correlate the developmental and anatomical knowledge of cell, hematology, immunology, nerve, muscle, bone, cardiovascular and respiratory systems to their physiological and biochemical basis.
- Perform basic examination skills related to basic concepts addressed
- Comprehend the significance of behavioral science in medical education.
- Analyze multiple perspectives of Islamic studies or ethics
- Discuss the basic principles of research.

## 8 Table Of Specification

Subject	Weightage	No. of Hours Allocated in Time table	Assessment			
			Knowledge		Skills	
			SEQs	MCQs	OSPE	Viva BLOCK E
Gross Anatomy	12.49%	29	00	16	04	02
Histology	9.82%	23	00	09		
Embryology	2.56%	06	00	4		
Physiology	21.36%	50	00	15	00	02
Biochemistry	29.48%	69	00	22	03	02
PRIME including Research	2.56%	06	00	03	00	00
Pharmacology	2.13%	05	00	01	00	00
Pathology	1.70%	04	00	03	00	00
Community Medicine	0.85%	02	00	01	00	00
Forensic Medicine	0.85%	02	00	01	00	00
Pakistan Studies	3.41%	08	00	00	00	00
General Medicine	2.13%	05	00	01	00	00
General Surgery	2.13%	05	00	02	00	00
ENT	0.42%	01	00	00	00	00
SDL	7.69%	18	00	00	00	00
Paeds	0.42%	01	00	00	00	00
Total	100%	234	00	78	07	06



## 9 Learning Objectives

### 9.1 General Learning Outcomes

At the end of this 9 weeks` module, the 2<sup>nd</sup>Year MBBS students will be able to:

#### Knowledge:

- Describe the anatomy of oral cavity with respect to GI functions.
- Elaborate the structure and functions of salivary glands.
- Describe the structure and development of esophagus, stomach, small intestine and large intestine.
- Describe the anatomy of peritoneum and mesentery.
- Explain the movements, functions and regulations of gastrointestinal functions.
- Describe the structure, development and functions of hepatobiliary system and pancreas.
- Discuss the mechanisms of digestion and absorptions of carbohydrates, proteins, fats and other nutrients.
- Describe different physiological reflexes occurring upon stimulation of gastrointestinal organs.
- Discuss the chemistry and functions of gastrointestinal hormones.
- Relate the basic sciences knowledge/pathophysiology with understanding of the common GIT diseases like peptic ulcers, viral hepatitis, obstructive jaundice, carcinoma of esophagus and colorectal cancers.
- Explain the metabolic processes related to carbohydrates, fats and protein metabolism.
- Explain the psychosocial aspects of common psychiatric and functional bowel disorders.

#### Skills

- Dissect various parts of GIT, and related structures including peritoneum, to demonstrate their gross anatomy and relationship to each other.
- Identify different organs of GIT under microscope and on model.

#### Attitude

- Demonstrate effective communication skill strategies especially during small group discussion.
- Describe the components of medical ethics.
- Explain research ethics, research misconduct and plagiarism.

### 9.2 Specific Learning Outcomes

#### Theme-1: “PAINFUL SWALLOWING”

#### Introduction:

This is a one-week activity and comprises of structural and functional features of upper gastrointestinal tract (oral cavity, oesophagus). It includes general principles of GIT motility and secretion. Developmental and microscopic features of oral cavity and esophagus are also

part of this theme.

The contents of this theme will be taught in LGF-Lectures, DSL and SGF-Practicals, SGD, SDL.

Theme-1: PAINFUL SWALLOWING							
S. No	Topic	Content	S. No	Learning objectives	Teaching strategies	H o u r	Assessment
GROSS ANATOMY							
1	Oral cavity – I	Oral cavity	1	Describe the musculature of tongue Describe the nerve supply of tongue	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
2	Oral cavity – II	Salivary glands	2	Describe the gross anatomy of parotid, submandibular and sublingual salivary gland	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
3	Esophagus	Esophagus	3	Describe the extent, course, relations and gross structure of esophagus.	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
EMBRYOLOGY							
1	Oral cavity	Development of tongue	4	Describe the developmental events of tongue Enlist various anomalies of tongue development	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
2	Esophagus	Development of esophagus	5	Describe the development of Esophagus	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
3	Salivary glands	Development of salivary glands	6	Describe the development of salivary glands	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
HISTOLOGY							

1	Oral cavity	Oral cavity	7	Describe the microscopic structure of lips	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
			8	Describe the histological features of tooth in longitudinal and transverse section			
			9	Explain the histology of tongue.			
			10	Differentiate between the microscopic picture of anterior 2/3rds and posterior 1/3rds of the tongue			
2	Esophagus	Esophagus	11	Identify the epithelium of esophagus and esophageal glands in mucosa	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
			12	Differentiate between musculature in different parts of the esophagus			
<b>PHYSIOLOGY</b>							
1.	GIT motility	General principles of gastrointestinal motility	13	Describe electrical activity of gastrointestinal smooth muscle	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
			14	Describe the mechanism of excitation of smooth muscle of gastrointestinal			
			15	Differentiate between slow wave and spike			

				potential			
2.	Neural control of GIT function	Enteric Nervous system	16	Differentiate between mesenteric and submucosal plexus.	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
			17	Classify the following enteric nervous system neurotransmitters as excitatory or inhibitory: norepinephrine, acetylcholine, CCK, VIP, histamine, and somatostatin			
			18	Describe the role of autonomic nervous system in regulation of GIT's function			
			19	Differentiate between sympathetic and parasympathetic modulation of the enteric nervous system and the effector organs of the GI tract			
			20	Describe three types of gastrointestinal reflexes			
3.	GIT Hormones	Hormonal control of Gastrointestinal motility	21	Describe gastrointestinal hormone actions, stimuli for secretion, and site of secretion	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
4.	Movements of the GIT	Functional types of	22	Describe the functional types	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP

		movements in the gastrointestinal tract		of movements in the gastrointestinal tract			E
			23	Describe law of gut.			
			24	Describe blood flow through the villus and its significance			
5.	GIT blood supply	Gastrointestinal blood flow—Splanchnic circulation	25	Describe anatomy of the gastrointestinal blood supply	LGF/SGD	1	MCQ/SEQ/VIVA/OSPE
			26	Describe the effect of gut activity and metabolic factors on gastrointestinal blood flow			
			27	Describe nervous control of gastrointestinal blood flow			
6.	Ingestion of food	Mechanics of ingestion of food	28	Describe the mechanics of ingestion of food	LGF/SGD	1	MCQ/SEQ/VIVA/OSPE
			29	Describe chewing and mastication			
			30	Describe different stages of swallowing.			
			31	Describe the effects of the pharyngeal stage of swallowing on respiration			
7.	GIT Secretion	General principles of alimentary tract secretion	32	Describe basic mechanisms of stimulation of the alimentary tract glands	LGF/SGD	1	MCQ/SEQ/VIVA/OSPE
			33	Describe dual			

				effect of sympathetic stimulation on alimentary tract glandular secretion			
8.	Saliva -I	Role of mucus and saliva	34	Describe the secretion of saliva and its nervous regulation	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
			35	Describe the plasma and saliva concentrations of Na <sup>+</sup> , Cl <sup>-</sup> , and HCO <sub>3</sub> <sup>-</sup> at low secretion rates and at high secretion rates and the principal cell types involved in each secretion rate.			
			36	State the substrates and digestion products of salivary amylase (ptyalin).			
9.	Saliva -II	Control of Salivary secretion	37	Identify the stimuli and cell types involved in GI secretion of mucous, and identify the function of salivary mucus.	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
			38	Describe three types of stimuli that increase salivary secretion.			
			39	State the components of the saliva important in oral			

				hygiene, and identify the role of salivary secretions in eliminating heavy metals			
10.	Oesophagus	Disorders of Swallowing and Oesophagus	40	Describe the clinical abnormalities of swallowing mechanism	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
			41	Describe Achalasia and Mega esophagus			
<b>BIOCHEMISTRY</b>							
1.	Saliva	Chemical composition and Role of Salivary secretions	42	Describe the composition of salivary secretions	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
			43	Describe the formation and characteristics of salivary secretions			
			44	Elaborate the functions of saliva			
<b>PATHOLOGY</b>							
1.	Esophagus	Carcinoma of Esophagus	45	Describe the histological types and presentation of esophageal carcinoma	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
<b>ENT</b>							
1.	Oral Cavity	Oral ulceration	46	Enlist the causes of oral ulcerations	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
			47	Describe Aphthous ulcers and its treatment			
			48	Describe the clinical features			

				and drugs used to treat esophageal candidiasis			
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## Theme 2: “PAIN EPIGASTRIUM”

### Introduction:

This is a 2-weeks activity and consists of structural features of abdominal wall and also includes anatomical, developmental and functional characteristics of stomach, duodenum and pancreas. It also includes gastric secretion and its disorders. Pharmacological and surgical management of peptic ulcer, gastric cancer and acute pancreatitis are also discussed.

The contents of this theme will be taught in LGF-Lectures, DSL and SGF-Practicals, SGD, SDL.

THEME-2 -- PAIN EPIGASTRIUM							
S. No	Topic	Content	S. No	Learning objectives	Teaching strategies	H o u r	Assessment
GROSS ANATOMY							
1	Anterior abdominal wall	Muscles of anterior abdominal wall.	49	Describe the origin, insertion, nerve supply and actions of anterolateral abdominal wall muscles	LGF/SGD	1	MCQ/SEQ/VIVA/OSPE
			50	Describe the formation of rectus sheath			
			51	Describe the contents of rectus sheath			
			52	Describe the surface anatomy of anterior abdominal wall  Describe the structures related to transpyloric			

				plane			
			53	Enlist various types of abdominal hernias			
2.	Inguinal canal	Inguinal canal boundaries.	54	Describe the boundaries of inguinal canal	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
			55	Enlist the contents of inguinal canal in males and females			
			56	Differentiate between direct and indirect inguinal hernia			
3.	Peritoneum	Omentum	57	Describe greater and lesser omentum	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
			58	Describe the nerve supply of peritoneum			
	Peritoneum	Omental bursa	59	Describe the anatomy of lesser sac.			
		Epiploic foramen.	60	Describe the boundaries of epiploic foramen			
		Peritoneal recesses, ligaments and pouches.	61	Describe the various peritoneal pouches, recesses and ligaments			
4.	Stomach	Stomach-structure	62	Describe the gross structure of stomach	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
		Stomach-Blood supply and lymphatics	63	Describe the blood supply and lymphatic drainage of stomach			

		Stomach bed.	64	Describe the anatomy of stomach bed			
5.	Duodenum	Structure and blood supply of duodenum	65	Describe the gross structure and blood supply of duodenum	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
			66	Write the relations of various parts of duodenum			
6.	Pancreas	Structure of pancreas	67	Describe the gross structure of pancreas and its ductal system	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
<b>HISTOLOGY</b>							
1.	Stomach	Microscopic anatomy of stomach	68	Enumerate the different layers of the stomach wall	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
			69	Write a note on gastric glands.			
			70	Differentiate between fundic and pyloric mucosa			
2.	Duodenum.	Microscopic features of Duodenum	71	Discuss histological features of duodenum and describe duodenal glands.	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
3.	Pancreas	Microscopic features of Pancreas .	72	Describe the histology of pancreas	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
			73	Differentiate histologically between exocrine and endocrine portions of pancreas			
<b>EMBRYOLOGY</b>							
1.	Fore Gut1	Foregut Development	74	Describe the development of	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP

		1		stomach			E
			75	Describe the development of duodenum			
			76	Enlist various developmental anomalies of stomach			
			77	Enlist various developmental anomalies of duodenum			
2.	Fore gut2	Development of Pancreas	78	Describe the development of pancreas	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
			79	Enlist various anomalies of pancreas			
<b>PHYSIOLOGY</b>							
1.	Stomach	Motor function of Stomach	80	Describe the motor function of stomach.	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
			81	Describe basic electrical rhythm of the stomach wall			
			82	Describe Pyloric pump			
			83	Describe role of the pylorus in controlling stomach emptying			
			84	Describe the regulation of gastric emptying			
2.	Gastric Secretion-I	Mechanism of Gastric Secretion	85	Describe characteristics of the gastric secretions	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
			86	Describe the mechanism of secretion of different gastric			

				glands			
3.	Gastric Secretion-II	Regulation of Gastric Secretion	87	Describe the phases and regulation of gastric secretion.	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
			88	Enlist the hormones that inhibit and increase gastric secretions.			
			89	Enumerate the reflexes that inhibit and increase gastric secretions			
<b>BIOCHEMISTRY</b>							
1.	Gastric secretions	Chemical composition and Role of Gastric secretions	90	Describe the chemical composition of gastric secretions	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
			91	Describe the functions of HCl and other constituents of gastric secretions			
			92	Discuss the mechanism of synthesis and secretion of HCl from gastric mucosa			
			93	Discuss the mechanism of secretion and role of Intrinsic factor from gastric parietal cells			
<b>PATHOLOGY</b>							
1.	Stomach	Peptic ulcer disease	94	Describe the mechanism of formation of peptic ulcers, its	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E

				stages and complications			
		Gastric cancer	95	Describe the etiology, pathology and clinical presentation of gastric cancer			
2.	Pancreas	Acute pancreatitis	96	Describe the mechanism of development, presentation and complications of acute pancreatitis	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
<b>PHARMACOLOGY</b>							
1.	Peptic ulcer	Drugs used in Peptic ulcer	97	Classify the drugs used in Peptic ulcer disease	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
			98	Describe the mechanism of action of drugs used in Peptic ulcer			
<b>FORENSIC MEDICINE</b>							
1.	Gastric Lavage	Poisons identification through gastric lavage	99	Enlist indications and contraindications for gastric lavage Describe the sampling technique of gastric lavage fluid	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
<b>MEDICINE</b>							
1.	Peptic ulcer	GERD and Peptic ulcer	100	Describe the etiology, clinical features, complications and drug treatment of GERD and peptic ulcer disease	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
<b>SURGERY</b>							
1.	Peptic ulcer	Complicatio	101	Describe the	LGF/SGD	1	MCQ/SEQ/

		ns of Peptic ulcer		complications of long-term peptic ulcer disease and its surgical management			VIVA/OSPE
2.	Lump in the abdomen	Hernia	102	Describe common causes of lump in abdomen and enlist the common surgical procedures for treatment of hernia.	LGF/SGD	1	MCQ/SEQ/VIVA/OSPE
3.	Pancreas	Acute pancreatitis	103	Describe the etiology, clinical features, complications and management of acute pancreatitis	LGF/SGD	1	MCQ/SEQ/VIVA/OSPE

### Theme 3: “JAUNDICE”

#### Introduction:

This theme has one-week activity and comprises of anatomical, functional and biochemical aspect as well as developmental and microscopic features of the hepatobiliary system.

It also includes hepatotoxicity and liver diseases.

The contents of this theme will be taught in LGF-Lectures, DSL and SGF-Practicals, SGD, SDL.

THEME-3: JAUNDICE							
S. No	Topic	Content	S. No	Learning objectives	Teaching strategies	Hour	Assessment
GROSS ANATOMY							
1.	Liver	Gross features of liver.	104	Describe the borders and surfaces of liver	LGF/SGD	1	MCQ/SEQ/VIVA/OSPE
			105	Describe the visceral surface of liver			
		Peritoneal	106	Describe the			

		attachments of liver.		peritoneal reflections and associated ligaments of liver			
		Liver lobes	107	Describe the lobes and segments of liver			
		Blood supply of liver	108	Describe the blood supply of liver			
			109	Describe the hepato renal pouch of morrison and its clinical significance			
2.	Extra hepatic biliary apparatus	Gall bladder - gross structure	110	Describe the gross anatomy of gall bladder	LGF/SGD	1	MCQ/SEQ/VIVA/OSPE
			111	Describe calot's triangle			
		Hepatic ducts, cystic duct and Bile duct.	112	Describe the gross anatomy of extra hepatic billiary tree			
3.	Spleen& portal Vein	Spleen Structure and blood supply	113	Describe the gross anatomy of spleen and blood supply of spleen	LGF/SGD	1	MCQ/SEQ/VIVA/OSPE
		Hepatic portal venous system	114	Describe the formation and tributaries / branches of hepatic portal venous system			
		Applied aspect of portal hepatic system	115	Explain the clinical significance of hepatic portal system			
<b>EMBRYOLOGY</b>							
1.	Distal Fore gut	Development of Gall bladder &	116	Describe the development of	LGF/SGD	1	MCQ/SEQ/VIVA/OSPE

		Biliary tree.		liver			E
			117	Describe the development of gall bladder and biliary tree			
			118	Describe the developmental anomalies of liver and biliary tree			
<b>HISTOLOGY</b>							
1.	Liver	Microscopic structure of liver.	119	Discuss the histological features of liver	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
			120	Describe liver parenchyma and general structural plan of the liver			
			121	Describe the histological features of the structures present in the portal triad			
	Spleen	Spleen microscopic structure	122	Discuss the histological features of spleen	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
			123	Differentiate between red pulp and white pulp			
<b>PHYSIOLOGY</b>							
1.	Pancreas	Pancreatic secretion	124	Describe the role of pancreatic secretions in digestion.	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
			125	Describe the phases and regulation of pancreatic secretion			
2.	Liver	Physiology of liver	126	Describe Physiological Anatomy of the Liver	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E

			127	Describe blood flow through the liver			
			128	Describe metabolic functions of liver			
			129	Describe Regulation of Liver Mass—Regeneration			
			130	Describe Bilirubin formation and excretion			
3.	Bile	Secretion of bile by liver	131	Describe the mechanism of secretion of bile by the liver	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
			132	Describe the function of bile salts in fat digestion and absorption			
			133	Describe functions of the biliary tree in digestion			
<b>BIOCHEMISTRY</b>							
1.	Bile	Chemical composition and Role of Bile	134	Describe the constituents of bile	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
			135	Describe the functions of bile			
			136	Describe the mechanism of gall stone formation			
<b>PATHOLOGY</b>							
1.	Liver - I	Hepatitis	137	Describe the different viruses causing acute and chronic hepatitis	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E

2.	Liver - II	Cirrhosis	138	Describe the pathogenesis, stages and clinical presentation of liver cirrhosis	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
<b>PHARMACOLOGY</b>							
1.	Drugs detoxification	First pass hepatic metabolism of drugs	139	Describe the mechanism of drugs detoxification and metabolism in the liver	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
		Hepatotoxic drugs	140	Enlist some of the commonly used hepatotoxic drugs and their toxicities			
<b>FORENSIC MEDICINE</b>							
1.	Hepatotoxicity	Hepatotoxic poisons	141	Enlist the poisons which cause hepatotoxicity Diagnose poisoning through routine toxicological sampling	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
<b>COMMUNITY MEDICINE</b>							
1.	Hepatitis-I	Hepatitis B and C	142	Describe the epidemiology of hepatitis B and C virus infection and its control measures	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
2.	Hepatitis-II	Hepatitis A and E	143	Describe water borne hepatitis (Hepatitis A and E) viruses and its control measures	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP E
<b>MEDICINE</b>							
1.	Liver	Cirrhosis	144	Describe the etiology, clinical	LGF/SGD	1	MCQ/SEQ/ VIVA/OSP

				features, complications and treatment options of liver cirrhosis			E
<b>SURGERY</b>							
1.	Gall Bladder	Obstructive jaundice	145	Describe the etiology, clinical features, biochemical investigations and treatment options of obstructive jaundice	LGF/SGD	1	MCQ/SEQ/VIVA/OSPE

## Theme 4: DIARRHEA AND CONSTIPATION

### Introduction:

This theme has one-week duration and consists of structural, developmental and functional aspects of small gut. Pancreatic secretions, digestion/ absorption, energy requirement of human body and nutritional disorders are also discussed in this theme.

It also includes disorders of small intestine and their treatment.

Methods of teaching comprises of LGIF- Lectures, DSL and SGIF-Practicals, SGD, SDL.

<b>THEME-4: DIARRHEA AND CONSTIPATION</b>							
<b>S. No</b>	<b>Topic</b>	<b>Content</b>	<b>S. No</b>	<b>Learning objectives</b>	<b>Teaching strategies</b>	<b>H o u r</b>	<b>Assessment</b>
<b>GROSS ANATOMY</b>							
1.	Jejunum and ileum	Structure & blood supply of jejunum and ileum	146	Describe the gross features of jejunum and ileum	LGF/SGD	1	MCQ/SEQ/VIVA/OSPE
			147	Tabulate differences in gross features and blood supply of jejunum and ileum			
2.	Mesenteries	Gross	148	Describe the	LGF/SGD	1	MCQ/SEQ/V

		features of Mesenteries		mesentery of small intestine			IVA/OSPE
3.	Appendix	Structure of appendix	149	Describe the gross features, blood supply and mesentery of appendix	LGF/SGD	1	MCQ/SEQ/V IVA/OSPE
		Clinical aspects of appendix.	150	Describe the clinical correlates of appendix			
4.	Abdominal aorta	Abdominal aorta and its branches	151	Enumerate the branches of abdominal aorta.	LGF/SGD	1	MCQ/SEQ/V IVA/OSPE
			152	Describe the course and distribution of celiac trunk			
			153	Describe the course and distribution of superior mesenteric artery			
			154	Describe the course and distribution of inferior mesenteric artery			
5.	Inferior vena cava	Inferior vena cava and its tributaries.	155	Describe the origin, course, tributaries and relations of inferior vena cava	LGF/SGD	1	MCQ/SEQ/V IVA/OSPE
6.	Lymphatic drainage of abdominal viscera.	Lymphatic drainage of abdominal organs.	156	Describe the origin, course and relations of Cisterna chili	LGF/SGD	1	MCQ/SEQ/V IVA/OSPE
			157	Describe the lymphatic drainage of abdominal organs			
<b>EMBRYOLOGY</b>							
1.	Mid Gut	Development of mid Gut.	158	Describe the formation and rotation of midgut loop	LGF/SGD	1	MCQ/SEQ/V IVA/OSPE
			159	Describe the physiological herniation of midgut			

				loop			
			160	Enlist the derivatives of mid gut loop			
			161	Describe the development of mesenteries			
		Congenital anomalies of mid gut	162	Describe the various anomalies of midgut development			
<b>HISTOLOGY</b>							
1.	Jejunum & ileum.	Microscopic anatomy of jejunum & ileum.	163	Discuss histological features of jejunum and describe plica circulares.	LGF/SGD	1	MCQ/SEQ/V IVA/OSPE
			164	Discuss histological features of ileum and describe Payers patches.			
			165	Discuss the various structural specializations meant for increasing the surface area of small intestine (plica circulares, crypts of Lieberkühn, villi and microvilli)			
2.	Appendix.	Microscopic structure of Appendix	166	Discuss histological features of appendix.	LGF/SGD	1	MCQ/SEQ/V IVA/OSPE
<b>PHYSIOLOGY</b>							
1.	Small intestine	Movements of the small intestine	167	Describe different types of movements of small intestine.	LGF/SGD	1	MCQ/SEQ/V IVA/OSPE
			168	Describe the control of peristalsis by nervous and hormonal signals			
2.	Duodenum	Brunner's glands Secretion	169	Describe secretion of mucus by Brunner's glands in the duodenum	LGF/SGD	1	MCQ/SEQ/V IVA/OSPE

3.	Pancreas	Pancreatic enzymes	170	Describe the chemistry, secretion, functions and regulation of pancreatic enzymes	LGF/SGD	1	MCQ/SEQ/V IVA/OSPE
3.	Intestinal Secretion	Intestinal digestive juices/enzymes	171	Describe the chemistry, secretion, functions and regulation of small intestinal digestive enzymes	LGF/SGD	1	MCQ/SEQ/V IVA/OSPE
			172	Describe secretion of intestinal digestive juices by the crypts of lieberkühn			
4.	Gastrointestinal hormones	Gastrin, Secretin, Cholecystokinin (CCK)	173	Describe the secretion, structure, functions and regulation of Gastrin, Secretin, Cholecystokinin and other GI hormones	LGF/SGD	1	MCQ/SEQ/V IVA/OSPE
5.	Disorders of small intestine	Malabsorption	174	Describe abnormal digestion of food in the small intestine in pancreatic failure	LGF/SGD	1	MCQ/SEQ/V IVA/OSPE
			175	Describe malabsorption by the small intestinal mucosa in Sprue			
<b>BIOCHEMISTRY</b>							
1.	Pancreatic secretions	Chemical composition and Role of Pancreatic secretions	176	Describe the composition of pancreatic secretions	LGF/SGD	1	MCQ/SEQ/V IVA/OSPE
			177	Describe the mechanism of secretion and actions of pancreatic enzymes			
			178	Describe the mechanism of			

				synthesis of Bicarbonates			
2.	Digestion and absorption	Digestion and absorption Lipids	179	Describe the mechanism of digestion and absorption of fats in the intestines	LGF/SGD	1	MCQ/SEQ/V IVA/OSPE
		Digestion and absorption of proteins	180	Describe the mechanism of digestion and absorption of proteins in the intestines			
		Digestion and absorption of Carbohydrates	181	Describe the mechanism of digestion and absorption of carbohydrates in the intestines			
		Digestion and absorption of Iron, Vitamin B12 & Folate	182	Describe the mechanism of absorption of Iron, Vitamin-B12 and Folate in the intestines			
3.	Energy requirement of human body	Energy requirement of human body in health and disease	183	Discuss the daily energy requirement of a human body in health and disease	LGF/SGD	1	MCQ/SEQ/V IVA/OSPE
		Basal Metabolic Rate	184	Define BMR			
			185	Enlist the causes of high and low BMR			
		Daily requirement of common vitamins & minerals	186	Describe the daily requirements of common vitamins, Iron, Calcium, Iodine and other minerals			
4.	Nutritional	Protein	187	Define Protein	LGF/SGD	1	MCQ/SEQ/V

	disorders	energy malnutrition		energy malnutrition and its associated clinical conditions			IVA/OSPE
5.	Adipose tissues	Adipose tissues homeostasis	188	Discuss adipose tissue homeostasis	LGF/SGD	1	MCQ/SEQ/V IVA/OSPE
<b>PHARMACOLOGY</b>							
1.	Diarrhoea	Anti-diarrheal drugs	189	Classify anti-diarrheal drugs and their mechanism of action	LGF/SGD	1	MCQ/SEQ/V IVA/OSPE
2.	Constipation	Drugs for constipation	190	Classify drugs used in constipation, and their mechanism of action	LGF/SGD	1	MCQ/SEQ/V IVA/OSPE
<b>COMMUNITY MEDICINE</b>							
1.	Food borne infection	Epidemiology and Prevention	191	Describe the epidemiology of food borne infections and their control measures	LGF/SGD	1	MCQ/SEQ/V IVA/OSPE
<b>PAEDIATRICS</b>							
1.	Gastroenteritis	Acute gastroenteritis	192	Describe the aetiology, clinical features, complications and treatment of acute gastroenteritis	LGF/SGD	1	MCQ/SEQ/V IVA/OSPE

### Theme 5: Bleeding Per Rectum

#### Introduction:

This theme is a 1-week activity, consisting of anatomical, developmental and functional aspects of large intestine. It also includes general disorders of the gastrointestinal tract as well as malignancies of the large gut.

Methods of teaching comprises of LGIF- Lectures, DSL and SGIF-Practicals, SGD, SDL.

<b>THEME-5: BLEEDING PER RECTUM</b>							
S. No	Topic	Content	S. No	Learning objectives	Teaching strategies	Hour	Assessment
<b>GROSS ANATOMY</b>							
1.	Large	Gross	193	Describe the gross	LGF/SGD	1	MCQ/SEQ/VIV

	intestine-I	structure of large intestine.		features of cecum, ascending, transverse and descending and sigmoid colon			A/OSPE
		Large intestine Mesentery	194	Describe the mesentery of large intestine			
2.	Large intestine-II	Gross Structure of rectum and anal canal and their blood supply.	195	Describe the gross anatomy of rectum	LGF/SGD	1	MCQ/SEQ/VIV A/OSPE
			196	Describe the gross anatomy of anal canal			
		Applied aspects of anal canal	197	Describe the blood supply of anal canal and its clinical correlates.			
		Ischioanal fossa	198	Describe the boundaries and contents of Ischiorectal (anal) fossa			
<b>EMBRYOLOGY</b>							
1.	Hind Gut	Development of hind gut	199	Describe the partitioning of cloaca	LGF/SGD	1	MCQ/SEQ/VIV A/OSPE
			200	Enlist the derivatives of hind gut			
		Developmental anomalies	201	Enlist the developmental anomalies of hindgut			
<b>HISTOLOGY</b>							
1.	Colon	Colon microscopy	202	Discuss the histological features of colon	LGF/SGD	1	MCQ/SEQ/VIV A/OSPE
			203	Describe the characteristic features of intestinal glands			

	Rectum & anal canal	Rectum& anal canal microscopy	204	Describe the histological features of Rectum			
<b>PHYSIOLOGY</b>							
1.	Large Intestine-I	Movements of the Colon	205	Describe different types of movements of colon	LGF/SGD	1	MCQ/SEQ/VIVA/OSPE
2.	Reflexes	GIT Reflexes	206	Describe gastro-colic reflex and duodeno-colic reflexes	LGF/SGD	1	MCQ/SEQ/VIVA/OSPE
			207	Describe the mechanism of defecation reflex			
3.	Secretion of Large Intestine	Mucus	208	Describe secretion of mucus by the large intestine	LGF/SGD	1	MCQ/SEQ/VIVA/OSPE
4.	Large Intestine-II	Disorders of Large intestine	209	Describe constipation, megacolon	LGF/SGD	1	MCQ/SEQ/VIVA/OSPE
			210	Explain mechanism of diarrhea and its causes.			
			211	Explain paralysis of defecation in spinal cord injuries			
5.	General Disorders of the gastrointestinal tract	Vomiting	212	Describe the mechanisms of Vomiting and Nausea	LGF/SGD	1	MCQ/SEQ/VIVA/OSPE
			213	Describe Vomiting Act			
			214	Describe Gastrointestinal Obstruction			
<b>BIOCHEMISTRY</b>							
1.	Intestinal juices	Composition of intestinal	215	Describe gases in the gastrointestinal tract (flatus)	LGF/SGD	1	MCQ/SEQ/VIVA/OSPE

		juices					
<b>PATHOLOGY</b>							
1.	Large Intestine	Carcinoma of colon and Rectum	216	Describe the composition of intestinal juices	LGF/SGD	1	MCQ/SEQ/VIVA/OSPE
<b>SURGERY</b>							
1.	GIT	Obstruction	217	Describe the etiology, histological findings, clinical presentation and staging of carcinoma of colorectal carcinoma	LGF/SGD	1	MCQ/SEQ/VIVA/OSPE
2.	Large Intestine	Colorectal malignancy	218	Describe the etiology, clinical features, investigations and management of colorectal cancers	LGF/SGD	1	MCQ/SEQ/VIVA/OSPE

### Theme-6 (Glucose control-Carbohydrate metabolism)

#### Introduction:

This theme has one-week activity of Biochemistry department only, consisting of carbohydrate metabolism. Methods of teaching include both LGIF and SGIF sessions.

<b>THEME-6: GLUCOSE CONTROL (CARBOHYDRATE METABOLISM)</b>							
S. No	Topic	Content	S. No	Learning objectives	Teaching strategies	Hours	Assessment
<b>BIOCHEMISTRY</b>							
1.	Oxidative Phosphorylation	Process of Oxidative Phosphorylation & Mechanism of ATP synthesis	219	Describe the generation of proton gradient & the resultant motive force across the inner mitochondrial membrane by transport of	LGF/SGD	1	MCQ/SEQ/VIVA/OSPE

				electrons through ETC which in turn produces ATP by oxidative phosphorylation			
			220	Describe the structure of ATP synthase enzyme (complex-V) & explain how it works as a rotary motor to synthesize ATP from ADP & Pi			
2.	Respiratory Chain Inhibitors & Uncouples	Role of Respiratory Chain Inhibitors & Uncouples	221	Describe the control of the rate of respiration, oxidation of reducing equivalents via ETC & its tightly coupling with oxidative phosphorylation in mitochondria	LGF/SG D	1	MCQ/SEQ/ VIVA/OSPE
			222	Discuss certain common poisons which block respiration or oxidative phosphorylation & identify their site of action			
			223	Explain how uncouplers act as poisons by dissociating oxidation from oxidative phosphorylation via ETC but at the same time they may have a			

				physiological role in generating body heat			
3.	Glycolysis	Glycolysis in Normal cells, RBCs & Cancer cells	224	Define Glycolysis	LGF/SG D	1	MCQ/SEQ/ VIVA/OSPE
			225	Describe the entry of glucose into different kinds of cells through various GLUT transporters			
			226	Describe the reactions of glycolysis			
			227	Describe the transportation of NADH to Mitochondria via various Shuttles			
			228	Describe the energetics of glycolysis			
			229	Describe the fates of pyruvate			
			230	Describe the types of glycolysis especially the anaerobic glycolysis			
			231	Describe the key enzymes and regulation of glycolysis			
			232	Discuss the glycolysis in RBC			
			233	Describe the biomedical Significance and clinical disorders of glycolysis			

			234	Discuss glycolysis in cancer cells			
4.	Oxidation of Pyruvate	Conversion of pyruvate into acetyl CoA	235	Describe the conversion of pyruvate into acetyl CoA	LGF/SG D	1	MCQ/SEQ/ VIVA/OSPE
			236	Enumerate the enzymes & coenzymes of PDH complex			
			237	Describe the sequence of reactions catalyzed by PDH complex.			
			238	Describe the regulation of PDH complex			
			239	Discuss the clinical aspects of PDH complex especially the congenital lactic acidosis			
5.	Tricarboxylic Acid Cycle	Describe Tricarboxylic Acid Cycle	241	Define citric acid cycle	LGF/SG D	1	MCQ/SEQ/ VIVA/OSPE
			242	Describe the sources of acetyl CoA in mitochondria			
			243	Describe the reactions of TCA			
			244	Discuss the energetics of TCA			
			245	Discuss the energy yield of one molecule of glucose when it is converted into carbon dioxide and water			
			246	Name the			

				vitamins that play key role in TCA			
			247	Describe the amphibolic nature of TCA			
			248	Discuss the regulation of TCA			
			249	Enumerate the inhibitors of TCA and their sites of inhibition			
6.	Gluconeogenesis	Describe Gluconeogenesis	250	Define Gluconeogenesis	LGF/SGD	1	MCQ/SEQ/VIVA/OSPE
			251	Name the organs and sub cellular location where Gluconeogenesis occurs			
			252	Describe the substrates or precursors of Gluconeogenesis			
			253	Describe the three bypass reactions			
			254	Describe the Gluconeogenesis from Fatty Acids			
			255	Discuss the Cori's cycle			
			256	Discuss the regulation of Gluconeogenesis			
			257	Name the key enzymes of Gluconeogenesis			
7.	Hexose Mono Phosphate shunt	Describe Hexose Mono Phosphate shunt	258	Discuss the Role of Pentose Phosphate Pathway	LGF/SGD	1	MCQ/SEQ/VIVA/OSPE
			259	Name the tissues where Hexose			

				Mono Phosphate shunt occurs			
			260	Describe the reactions of the two parts of Hexose Mono Phosphate shunt			
			261	Describe the Role of thiamine in Hexose Mono Phosphate shunt			
			262	Enumerate the Similarities & differences b/w glycolysis and HMP shunt pathway			
			263	Discuss the functions of NADPH (produced in Hexose Mono Phosphate shunt) in various tissues and cells			
			264	Discuss G6PD deficiency and its effects in various tissues and cells			
			265	Describe the regulation of HMP shunt pathway			
8.	Uronic Acid Pathway	Describe Uronic Acid Pathway	266	Enumerate the products of Uronic acid pathway and their importance	LGF/SG D	1	MCQ/SEQ/ VIVA/OSPE
			267	Discuss why ascorbic acid is vitamin for humans			
	Galactose	Describe	268	Describe the uses	LGF/SG	1	MCQ/SEQ/

	Metabolism	Galactose Metabolism		& requirements of galactose in the body	D		VIVA/OSPE
			269	Discuss the various reactions with enzymes involved			
			270	Describe the Genetic Deficiencies of Enzymes in Galactose Metabolism and their effects			
9.	Fructose Metabolism	Describe Fructose Metabolism	271	Describe the Main source of Fructose	LGF/SG D	1	MCQ/SEQ/ VIVA/OSPE
			272	Discuss the various reactions with enzymes involved			
			273	Discuss the Fructose formation in Seminal fluid			
			274	Describe the mechanism of formation of diabetic cataract			
			275	Discuss the Defects in Fructose Metabolism and their effects			
10.	Glycogen Metabolism	Describe Glycogen Metabolism	276	Describe the structure and functions of the glycogen especially the significance of its polymer nature	LGF/SG D	1	MCQ/SEQ/ VIVA/OSPE
			277	Describe the Difference			

				between Liver & muscle glycogen			
			278	Describe the synthesis of glycogen by two mechanisms with its enzymes			
			279	Discuss the breakdown of glycogen with its enzymes			
			280	Describe the Regulation of Glycogen metabolisms			
			281	Discuss the glycogen storage diseases with deficient enzymes and cardinal clinical features			

### Theme-7 OBESITY- (Fat Metabolism)

#### Introduction:

This theme has 4-days activity of Biochemistry department, consisting of lipid metabolism. It also includes one lecture of General Medicine - hyperlipidaemias.

Methods of teaching include both LGIF and SGIF sessions.

THEME-7 OBESITY- (Fat Metabolism)							
S. No	Topic	Content	S. No	Learning objectives	Teaching strategies	Hour	Assessment
BIOCHEMISTRY							
1.	Fatty acid (FA) synthesis	De Novo synthesis of Fatty acid	282	Enumerate the organs where fatty acid synthesis occurs with sub cellular sites	LGF/SGD	1	MCQ/SEQ/VIVA/OSPE
			283	Discuss the source of Acetyl CoA that			

				will be used for FA synthesis with reason			
			284	Discuss how acetyl CoA comes out of mitochondria for the synthesis of FA			
			285	Describe the steps of FA synthesis with enzymes			
			286	Describe the FA synthase enzyme with its structure and components			
			287	Describe the product of FA synthase and the subsequent fate of this product			
			288	Discuss the regulation of FA synthesis			
			289	Discuss why animals cannot convert fatty acids into glucose			
			290	Describe the further elongation and desaturation of FA and its regulation			
2.	Mobilization of stored fats	Oxidation of Fattyacids	291	Describe how fats are mobilized from adipose tissues to the organs where they will be used for oxidation	LGF/SGD	1	MCQ/SEQ/VIVA/OSPE
			292	Enumerate the various methods of oxidation of FA			
			293	Discuss the stages of beta oxidation with its reactions			
			294	Calculate the no. of			

				ATP obtained when one molecule of palmitic acid is oxidized completely			
			295	Describe the genetic deficiencies of FA oxidation i.e. MCAD & CAT deficiencies with their hallmarks			
			296	Discuss the oxidation of odd-chain FA			
			297	Compare the processes of FA synthesis with FA oxidation			
3.	Ketone bodies	Describe Metabolism of Ketone bodies	298	Enumerate the ketone bodies	LGF/SGD	1	MCQ/SEQ/VIVA/OSPE
			299	Define ketogenesis			
			300	Describe the steps of ketogenesis			
			301	Discuss the energy yield during ketogenesis in liver			
			302	Enumerate the conditions in which there is increased ketogenesis			
			303	Discuss utilization of ketone bodies			
			304	Discuss the energy yield in ketone bodies utilization in extra hepatic tissues			
			305	Describe the regulation of ketogenesis in well-			

				fed healthy conditions, during early stages of starvation & in prolonged starvation			
			306	Discuss the ketoacidosis in diabetes			
4.	Complex Lipids	Describe Complex Lipid metabolism	307	Describe the synthesis of triacylglycerol by two mechanisms	LGF/SGD	1	MCQ/SEQ/VIV A/OSPE
			308	Describe the synthesis of phosphatidic acid			
			309	Enumerate the substances formed from phosphatidic acid			
			310	Describe the synthesis of glycerophospholipids			
			311	Discuss the degradation of glycerophospholipids			
			312	Describe the synthesis of ceramide and sphingophospholipids (shingomyelin)			
			313	Discuss the degradation of shingomyelin			
			314	Discuss Niemann-Pick disease with its cardinal clinical features			
			315	Discuss Farber disease with its			

				cardinal clinical features			
			316	Describe the synthesis of glycosphingolipids			
			317	Describe the degradation of glycosphingolipids			
			318	Describe the abnormalities of phospholipid metabolism i.e. true demyelinating diseases and sphingolipidosis			
5.	Eicosanoids	Describe Eicosanoid metabolism & Prostanoids	319	Define eicosanoids and describe their two classes	LGF/SGD	1	MCQ/SEQ/VIVA/OSPE
			320	Describe the synthesis of prostanoids by cyclo-oxygenase pathway			
			321	Enumerate the two isomers of cyclo-oxygenase with their inhibition			
			322	Discuss why low dose aspirin therapy is used in strokes and heart attacks			
			323	Describe biochemical reason for the adverse effects of NSAIDs & steroids			
			324	Describe the catabolism of the prostanoids			
			325	Describe the			

				lipxygenase pathway for synthesis of Leukotrienes and lipoxins			
			326	Describe the synthesis of leuktriene biosynthesis inhibition			
			327	Enumerate the leukotriene receptor antagonists			
6.	Cholesterol	Describe Metabolism of cholesterol	328	Describe the major sites of cholesterol synthesis as well as sub cellular sites	LGF/SGD	1	MCQ/SEQ/VIVA/OSPE
			329	Describe the source of cholesterol synthesis			
			330	Describe the various steps of cholesterol synthesis			
			331	Discuss the regulation of cholesterol synthesis			
			332	Enumerate the inhibitors of HMG CoA reductase inhibitors			
			333	Describes the degradation and excretion of cholesterol with synthesis of bile acids, their conjugation, bile salt formation and micelle formation in lumen of the intestine			

			334	Discuss the enterohepatic circulation of bile salts			
			335	Discuss the role of bile acid sequestrants i.e. cholestyramine and dietary fibre			
			336	Discuss the regulation of bile acid synthesis			
7.	Lipoproteins	Metabolism and classification of lipoproteins	337	Describe the structure of a typical lipoprotein particle	LGF/SGD	1	MCQ/SEQ/VIVA/OSPE
			338	Enumerate the various classes of LP			
			339	Enumerate the functions of apolipoproteins			
			340	Describe the steps of chylomicrons' metabolism			
			341	Describe the metabolism of VLDL			
			342	Describe the metabolism of LDL			
			343	Describe the metabolism of HDL			
8.	Disturbances of Lipid metabolism	Hyperlipidemias & their classification	344	Differentiate between hyperlipidemias and dyslipidaemia	LGF/SGD	1	MCQ/SEQ/VIVA/OSPE
			345	Describe the Classification of hyperlipidemias with enzyme			

				deficiency			
<b>MEDICINE</b>							
1.		hyperlipid emias	346	Describe the epidemiology, preventive strategies and diseases associated with hyperlipidemias	LGF/SGD	1	MCQ/SEQ/VIV A/OSPE

### Theme-8 WASTING (Protein Metabolism)

#### Introduction:

This theme has 8- days activity of Biochemistry department only and comprises of protein metabolism.

Methods of teaching include both LGIF and SGIF sessions.

<b>THEME-8 WASTING (Protein Metabolism)</b>							
<b>S. No</b>	<b>Topic</b>	<b>Content</b>	<b>S. No</b>	<b>Learning objectives</b>	<b>Teaching strategies</b>	<b>Hour</b>	<b>Assessment</b>
<b>BIOCHEMISTRY</b>							
1.	Amino acid pool	Describe Amino acid pool & chemical processes for dissimilation of proteins	347	Discuss how amino acid pool is formed	LGF/SGD	1	MCQ/SEQ/VIVA/OSPE
			348	Discuss the chemical processes responsible for dissimilation of proteins: transamination, deamination and transdeamination			
			349	Discuss the clinical importance of transaminases			
2.	Ammonia transport	Ammonia formation,	350	Discuss how ammonia is	LGF/SGD	1	MCQ/SEQ/VIVA/OSPE

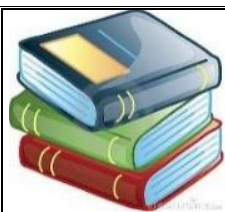
	and effects of ammonia toxicity on brain	transport of ammonia and effects of ammonia toxicity on brain		formed in various tissues and transported to liver Discuss the effects of ammonia toxicity in brain				
	Urea cycle	Urea cycle & its associated inherited disorders	351	Describe the Krebs-Henselet Cycle of Urea Formation in Liver				
			352	Describe the clinical significance of various enzymes involved in urea formation				
	Metabolism of aromatic amino acids	Describe Metabolism of aromatic amino acids	353	Discuss biosynthesis, fate, metabolic functions and related inherited disorders of aromatic amino acids				
3.	Metabolism of sulphur containing amino acids	Describe Metabolism of sulphur containing amino acids	354	Discuss biosynthesis, fate, metabolic functions and related inherited disorders of sulphur containing amino acids	LGF/SGD	1	MCQ/SEQ/VIVA/OSPE	
4.	Metabolism of individual amino acids	Describe Metabolism of individual amino acids	355	Discuss biosynthesis, fate, metabolic functions and related inherited disorders of Glycine, serine,	LGF/SGD	1	MCQ/SEQ/VIVA/OSPE	

				and alanine			
			356	Discuss biosynthesis, fate, metabolic functions and related inherited disorders of acidic amino acids			
			357	Discuss biosynthesis, fate, metabolic functions and related inherited disorders of branched chain amino acids			

### List of practical works

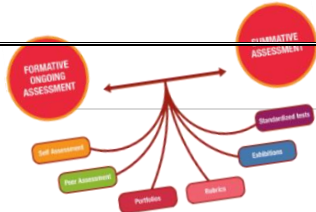
Subject	Topic	S. No	Learning objectives
Histology	Lips and tongue	358	Identify the histological features of lips and tongue under the microscope
	Esophagus	359	Identify the histological features of Esophagus under the microscope
	Stomach	360	Identify the histological features of stomach under the microscope
	Duodenum	361	Identify the histological features of duodenum under the microscope
	Liver	362	Identify the histological features of liver under the microscope
	Gall bladder	363	Identify the histological features of gall bladder under the microscope
	Jejunum and Ilium	364	Identify the histological features of Jejunum and Ilium under the microscope
	Appendix	365	Identify the histological features of Appendix under the microscope
	Colon and Rectum	366	Identify the histological features of Colon and Rectum under the microscope
Physiology	Examination of abdomen	367	Examine a standardized patient's abdomen
Biochemistry	Determination of	368	Estimate the plasma proteins in a given blood

	plasma proteins		sample
	Determination of free, total and combined acidity of the Gastric juice	369	Estimate free, total and combined acidity of gastric juice
	Determination of serum Bilirubin	370	Estimate serum Bilirubin in a given blood sample
	Determination of Titrable acidity of urine	371	Estimate the Titrable acidity of urine
	Determination of serum cholesterol	372	Estimate serum Cholesterol in a given blood sample



## 10 Learning Opportunities and Resources

S.No	SUBJECT	LEARNING RESOURCES/ RECOMMENDED BOOKS
1.	Gross Anatomy	Clinical Anatomy by Regions by Richard S. Snell (Latest Edition)
		Gray's Anatomy for Students (Latest Edition)
		K.L. Moore, Clinically Oriented Anatomy (Latest Edition)
		Netter's "Atlas of Human Anatomy (Latest Edition)
		Last's Anatomy (Latest Edition)
2.	Histology	Textbook of Histology by Junqueira (Latest Edition)
		diFiore's ATLAS of Histology with Functional Correlations (Latest Edition)
		Atlas of Human Histology by Wheaters. (Latest Edition)
		Textbook of Histology by Laiq Hussain (Latest Edition)
3.	Embryology	Langman's Medical Embryology (Latest Edition)
		The Developing Human "by Keith L Moore" (Latest Edition)
4.	Physiology	Textbook of Medical Physiology by Guyton and Hall (Latest Edition)
		Ganong's "Review of Medical Physiology" (Latest Edition)
5.	Biochemistry	Harper's Illustrated Biochemistry (Latest Edition)
		Lippincott's Illustrated Review: Biochemistry (Latest Edition)
6.	Pharmacology	Katzung's Basic and Clinical Pharmacology (Latest Edition)
7.	Pathology	Robbin's Basic Pathology (Latest Edition)
8.	Community Medicine	Essential Community Medicine (Latest Edition)
		K Park Textbook of Preventive and Social Medicine (Latest Edition)
9.	General Medicine	Davidson's Principles and Practice of Medicine (Latest Edition)
10.	Radiology	David Sutton's Textbook of Radiology and Imaging (Latest Edition)
11.	Neurosurgery	Greenberg's Textbook of Neurosurgery
		Rangacharya's Principles of Neurosurgery



## 11 Examination and Methods of Assessment:

### a. Instructions:

- Students must arrive the examination venue at least 15 minutes before the scheduled start time. Latecomers 15 minutes after the start of exam, will not be allowed to enter the examination hall after the start time, and if permitted, they will not receive extra time.
- Students without College ID Card and white Lab Coat will not be allowed to sit in exam.
- In case of an emergency such as a medical emergency, students should inform the examination supervisor.
- Students are required to submit prohibited items such as mobile phones, smartwatches, electronic devices, books, notes, or any unauthorized materials before entering the examination hall.
- Students must maintain complete silence within the examination hall. They should refrain from communicating with fellow students and strictly follow invigilator instructions.
- Students must mark their attendance properly.
- No student will be allowed to leave the examination hall before half the time is over and paper should be properly handed to the examiner.
- Violation of these guidelines may lead to disqualification from the examination.

### b. The Distribution of Internal Assessment Score (10% Marks):

The distribution of Internal Assessment Score for 2<sup>nd</sup> Year MBBS will be as follows:

- Total Marks for 2<sup>nd</sup> Year MBBS= 700 & Internal Assessment Marks=70 (10%)
- 50 % of the Internal Assessment Marks may be given to Block Exams
- 50 % of the Internal Assessment marks may be given to Class Test/ End of Module Exam, Assignments and Presentations.
- Biochemistry department is responsible to maintain the attendance record for BLOCK – D in coordination with all the concerned departments.
- Anatomy department is responsible to maintain the attendance record for BLOCK – E in coordination with all the concerned departments.
- Physiology department is responsible to maintain the attendance record for BLOCK – F in coordination with all the concerned departments.
- 

#### A. Distribution of 20 Marks for Block Papers for second Year MBBS will be as under:

Block	Block D	Block E	Block F	Total
Marks	07	6.5	6.5	20

**B. Distribution of 15 Marks for Block OSPE will be as under:**

Block	Block D	Block E	Block F	Total
Marks	05	05	05	15

**C. Distribution of 20 marks for Class Test/ End of Module Exam & Assignments for 2<sup>nd</sup> Year MBBS will be as under:**

Subject (Theory)	Block D	Block E	Block F	Total
Class Test/ End of Module Exam	04	3.5	3.5	11
Assignments	03	03	03	09
Total	07	6.5	6.5	20

**D. Distribution of 15 marks for Presentations, Attitude/ Behavior for 2<sup>nd</sup> Year MBBS will be as under:**

Subject (OSPE)	Block D	Block E	Block F	Total
Presentations	03	03	03	09
Attitude/ Behavior	02	02	02	06
Total	05	05	05	15

**c. University Examination: Exam has 90% Marks**

- To appear in any university examination, more than 75% attendance in all disciplines is mandatory for the students.
- The Paper A will be comprised of 120 MCQs. The distribution of 90% Marks for Paper --- Written Exam will be as under:

Blue Print for Block E Assessment			
SUBJECT	GIT	Renal	Total MCQs
Gross Anatomy	16	7	23
Histology	9	4	13
Embryology	4	3	7
Physiology	15	14	29
Biochemistry	22	8	30
PRIME	3	2	5
Pathology	3	1	4
Pharmacology	1	1	2
Forensic Medicine	1	0	1
Community Medicine	1	0	1
General Medicine	1	1	2
EYE	0	0	0
ENT	0	0	0
Surgery	2	1	3
Total	78	42	120

### BLOCK E OSPE BLUEPRINT

SUBJECT	GIT	RENAL	VIVA STATIONS	TOTAL STATIONS
Anatomy	4	3	2	9
Histology				
Embryology				
Physiology	0	1	2	3
Biochemistry	3	1	2	6
TOTAL	7	5	6	18

## 12 Tentative Timetables

**SWAT MEDICAL COLLEGE**  
**DEPARTMENT OF MEDICAL EDUCATION**  
**TIME TABLE FOR GIT, HEPATOBILIARY & METABOLISM MODULE (2<sup>nd</sup> Year MBBS)**  
**SESSION 2023-2024**  
**WEEK-1**

**THEME 1: Painful Swallowing**

Days	8:00 to 9:00 am	09:00 to 10:00 am	10:00 am to 11:00 am	11:00am to 1:00 pm		1:30 to 2:30 pm
<b>Monday</b> 13/05/2024	<b>Gross Anatomy</b> Oral Cavity <b>Dr.</b>	<b>Gross Anatomy</b> Salivary Gland <b>Dr.</b>	<b>Physiology</b> General principles of gastrointestinal motility <b>Dr.</b>	<b>PRACTICALS/ SGD</b> Batch A: Phy <b>Dr.</b> Batch B: Histo <b>Dr.</b> Batch C: Bio <b>Dr.</b>		<b>Anatomy-DSL</b>  <b>Dr.</b>
<b>Tuesday</b> 14/05/2024	<b>Embryology</b> Development of the Tongue & Esophagus <b>Dr.</b>	<b>Physiology</b> Neural control of GIT function <b>Dr.</b>	<b>Gross Anatomy</b> Esophagus <b>Dr.</b>	<b>PRACTICALS/ SGD</b> Batch A: Bio <b>Dr.</b> Batch B: Phy <b>Dr.</b> Batch C: Histo <b>P Dr.</b>		<b>Physiology-DSL</b>  <b>Dr.</b>
<b>Wednesday</b> 15/05/2024	<b>Embryology</b> Development of Salivary Glands <b>Dr.</b>	<b>Physiology</b> Hormonal control of Gastrointestinal motility <b>Dr.</b>	<b>Biochemistry</b> Saliva <b>Dr.</b>	<b>PRACTICALS/ SGD</b> Batch A: Histo <b>Dr.</b> Batch B: Bio <b>Dr.</b> Batch C: Phy <b>Dr.</b>		<b>Biochemistry-DSL</b>  <b>Dr.</b>
<b>Thursday</b> 16/05/2024	<b>Histology</b> Oral Cavity & Esophagus <b>Dr.</b>	<b>Physiology</b> Functional types of movements in the GIT <b>Dr.</b>	<b>Physiology</b> Gastrointestinal blood flow <b>Dr.</b>	11:00am to 12:00 pm	12:00 to 1:00 pm	<b>PRIME</b> Social Accountability <b>Dr.</b>
				<b>Physiology</b> Ingestion of food <b>Dr.</b>	<b>Physiology</b> General principles of alimentary tract secretion <b>Dr.</b>	
<b>Friday</b> 17/05/2024	<b>Pak Studies</b> Establishment of Pakistan <b>Dr.</b>	<b>Physiology</b> Role of mucus and saliva <b>Dr.</b>	<b>Physiology</b> Disorders of swallowing and esophagus <b>Dr.</b>	<b>Pathology</b> Carcinoma of Esophagus <b>Dr.</b>	<b>ENT</b> Oral ulceration <b>Dr.</b>	<b>SDL</b> (SLRC/Library)

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**SESSION 2023-24**  
**WEEK-2**  
**THEME 2: Pain Epigastrium**

Days	8:00 to 9:00 am	09:00 to 10:00 am	10:00 am to 11:00 am	11:00am to 1:00 pm		1:30 to 2:30 pm
<b>Monday</b> 20/05/2024	<b>Gross Anatomy</b> Anterior Abdominal Wall <b>Dr.</b>	<b>Gross Anatomy</b> Inguinal Canal <b>Dr.</b>	<b>Gross Anatomy</b> Peritoneum <b>Dr.</b>	<b>PRACTICALS/ SGD</b> s Batch A: Phy <b>Dr.</b> Batch B: Histo <b>Dr.</b> Batch C: Bio <b>Dr.</b>		<b>Anatomy-DSL</b>  <b>Dr.</b>
<b>Tuesday</b> 21/05/2024	<b>Embryology</b> Development of foregut & Pancreas <b>Dr.</b>	<b>Gross Anatomy</b> Stomach <b>Dr.</b>	<b>Physiology</b> Motor function of Stomach <b>Dr.</b>	<b>PRACTICALS/ SGD</b> s Batch A: Bio <b>Dr.</b> Batch B: Phy <b>Dr.</b> Batch C: Histo <b>Dr.</b>		<b>Physiology-DSL</b>  <b>Dr.</b>
<b>Wednesday</b> 22/05/2024	<b>Histology</b> Stomach <b>Dr.</b>	<b>Physiology</b> Gastric secretion <b>Dr.</b>	<b>Biochemistry</b> Gastric secretions <b>Dr.</b>	<b>PRACTICALS/ SGD</b> s Batch A: Histo <b>Dr.</b> Batch B: Bio <b>Dr.</b> Batch C: Phy <b>Dr.</b>		<b>Biochemistry-DSL</b> Gastric secretions <b>Dr.</b>
<b>Thursday</b> 23/05/2024	<b>Gross Anatomy</b> Duodenum & Pancreas <b>Dr.</b>	<b>Histology</b> Duodenum & Pancreas <b>Dr.</b>	<b>Pathology</b> Peptic ulcer disease <b>Dr.</b>	<b>11:00am to 12:00 pm</b>	<b>12:00 to 1:00 pm</b>	<b>PRIME</b> Verbal & Non Verbal Communication Skills <b>Dr.</b>
				<b>General Medicine</b> GERD and Peptic ulcer <b>Dr.</b>	<b>General Surgery</b> Peptic Ulcer <b>Dr.</b>	
<b>Friday</b> 24/05/2024	<b>Pak Studies</b> Objectives Resolution Islamic Provision in The Constitutions of 1956, 1962 & 1973 <b>Dr.</b>	<b>Pharmacology</b> Drugs used in Peptic ulcer <b>Dr.</b>	<b>General Surgery</b> Lump in the abdomen <b>Dr.</b>	<b>Forensic Medicine</b> Poisons identification through gastric lavage <b>Dr.</b>	<b>General Surgery</b> Acute Pancreatitis <b>Dr.</b>	<b>SDL</b> (SLRC/Library)

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**SESSION 2023-2024**

**WEEK-3**

**THEME 3: Jaundice**

Days	8:00 to 9:00 am	09:00 to 10:00 am	10:00 am to 11:00 am	11:00am to 1:00 pm		1:30 to 2:30 pm
<b>Monday 27/05/021</b>	<b>Gross Anatomy</b> Liver <b>Dr.</b>	<b>Gross Anatomy</b> Extrahepatic biliary apparatus <b>Dr.</b>	<b>Physiology</b> Pancreatic secretion <b>Dr.</b>	<b>PRACTICALS/ Model Dissection</b> Batch A: Bio <b>P Dr.</b> Batch B: Histo <b>P Dr.</b> Batch C: <b>Model Dissection Dr.</b>		<b>Anatomy-DSL</b>  <b>Dr.</b>
<b>Tuesday 28/05/021</b>	<b>Embryology</b> Development of distal foregut <b>Dr.</b>	<b>Physiology</b> Physiology of liver <b>Dr.</b>	<b>Gross Anatomy</b> Spleen <b>Dr.</b>	<b>PRACTICALS</b> Batch A: <b>Model Dissection Dr.</b> Batch B: Bio <b>P Dr.</b> Batch C: Histo <b>P Dr.</b>		<b>Physiology-DSL</b>  <b>Dr.</b>
<b>Wednesday 29/05/021</b>	<b>Histology</b> Liver <b>Dr.</b>	<b>Physiology</b> Secretion of bile by Liver <b>Dr.</b>	<b>Biochemistry</b> Bile <b>Dr.</b>	<b>PRACTICALS</b> Batch A: Histo <b>P Dr.</b> Batch B: <b>Model Dissection Dr.</b> Batch C: Bio <b>P Dr.</b>		<b>Biochemistry-DSL</b> Bile <b>Dr.</b>
<b>Thursday 30/05/021</b>	<b>Histology</b> Spleen <b>Dr.</b>	<b>Gross Anatomy</b> Hepatic portal venous system <b>Dr.</b>	<b>Pathology</b> Acute/ chronic viral hepatitis <b>Dr.</b>	<b>11:00am to 12:00 pm</b>	<b>12:00 to 1:00 pm</b>	<b>PRIME</b> Listening Skills <b>Dr.</b>
				<b>Forensic Medicine</b> Hepatotoxic poisons <b>Dr.</b>	<b>General Medicine</b> Liver Cirrhosis <b>Dr.</b>	
<b>Friday 31/05/021</b>	<b>Pak Studies</b> Introduction of Complete Islamic System in Pakistan <b>Dr.</b>	<b>Pharmacology</b> First pass hepatic metabolism of drugs <b>Dr.</b>	<b>Community Medicine</b> Hepatitis B and C virus infection <b>Dr.</b>	<b>Pharmacology</b> Hepatotoxic drugs <b>Dr.</b>	<b>General Surgery</b> Obstructive Jaundice <b>Dr.</b>	<b>SDL</b> (SLRC/Library)

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**SESSION 2023-2024**  
**WEEK-4**

**THEME 4: Diarrhea and Constipation**

Days	8:00 to 9:00 am	09:00 to 10:00 am	10:00 am to 11:00 am	11:00am to 1:00 pm		1:30 to 2:30 pm
<b>Monday</b> 03/06/2024	<b>Gross Anatomy</b> Jejunum & Ileum <b>Dr.</b>	<b>Gross Anatomy</b> Mesenteries & Appendix <b>Dr.</b>	<b>Physiology</b> Movements of the small intestine <b>Dr.</b>	<b>PRACTICALS/ Model Dissection</b> Batch A: Bio <b>P Dr.</b> Batch B: Histo <b>P Dr.</b> Batch C: <b>Model Dissection Dr.</b>		<b>Anatomy-DSL</b>  <b>Dr.</b>
<b>Tuesday</b> 04/06/2024	<b>Embryology</b> Development of midgut <b>Dr.</b>	<b>Physiology</b> Secretions of the small intestine <b>Dr.</b>	<b>Gross Anatomy</b> Abdominal Aorta <b>Dr.</b>	<b>PRACTICALS</b> Batch A: <b>Model Dissection Dr.</b> Batch B: Bio <b>P Dr.</b> Batch C: Histo <b>P Dr.</b>		<b>Physiology-DSL</b>  <b>Dr.</b>
<b>Wednesday</b> 05/06/2024	<b>Histology</b> Jejunum & Ileum <b>Dr.</b>	<b>Physiology</b> Pancreatic enzymes <b>Dr.</b>	<b>PRIME</b> Reading skills <b>Dr.</b>	<b>PRACTICALS</b> Batch A: Histo <b>P Dr.</b> Batch B: <b>Model Dissection Dr.</b> Batch C: Bio <b>P Dr.</b>		<b>Biochemistry</b> Pancreatic Secretions <b>Dr. Najmuddin</b>
<b>Thursday</b> 06/06/2024	<b>Histology</b> Appendix <b>Dr.</b>	<b>Biochemistry</b> Digestion & Absorption of Carbohydrates <b>Mr. Khalilullah</b>	<b>Gross Anatomy</b> Inferior Vena Cava <b>Dr.</b>	<b>11:00am to 12:00 pm</b>	<b>12:00 to 1:00 pm</b>	<b>Biochemistry</b> Digestion & Absorption of Proteins <b>Mr. Khalilullah</b>
				<b>Physiology</b> Intestinal digestive enzymes <b>Dr.</b>	<b>PRIME</b> Reading skills <b>Dr.</b>	
<b>Friday</b> 07/06/2024	<b>Pak Studies</b> Geography of Pakistan <b>Dr.</b>	<b>Biochemistry</b> Digestion & Absorption of Lipids <b>Mr. Khalilullah</b>	<b>Physiology</b> Gastrointestinal hormones <b>Dr.</b>	<b>Biochemistry</b> Energy requirement of human body <b>Dr.</b>	<b>Physiology</b> Disorders of small intestine <b>Dr.</b>	<b>SDL</b> (SLRC/Library)

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**SESSION 2023-24**  
**WEEK-5**

**THEME 4/5: Diarrhea and Constipation/ Bleeding Per Rectum**

Days	8:00 to 9:00 am	09:00 to 10:00 am	10:00 am to 11:00 am	11:00am to 1:00 pm		1:30 to 2:30 pm
<b>Monday</b> 10/06/2024	<b>Biochemistry</b> Nutritional Disorders <b>Dr.</b>	<b>Biochemistry</b> Adipose tissues <b>Dr.</b>	<b>Community Medicine</b> Food borne infection <b>Dr.</b>	<b>PRACTICALS/ Model Dissection</b> Batch A: Phy P Dr. Batch B: Histo P Dr. Batch C: <b>Model Dissection Dr.</b>		<b>Anatomy-DSL</b>  <b>Dr.</b>
<b>Tuesday</b> 11/06/2024	<b>Paeds</b> Acute gastroenteritis <b>Dr.</b>	<b>Pharmacology</b> Anti-diarrheal drugs <b>Dr.</b>	<b>Pharmacology</b> Drugs for constipation <b>Dr.</b>	<b>PRACTICALS</b> Batch A: <b>Model Dissection Dr.</b> Batch B: Phy P Dr. Batch C: Histo P Dr.		<b>Physiology-DSL</b>  <b>Dr.</b>
<b>Wednesday</b> 12/06/2024	<b>Gross Anatomy</b> Large Intestine <b>Dr.</b>	<b>Physiology</b> Movements of the Colon <b>Dr.</b>	<b>Physiology</b> Secretion of Large Intestine <b>Dr.</b>	<b>PRACTICALS</b> Batch A: Histo P Dr. Batch B: <b>Model Dissection Dr.</b> Batch C: Phy P Dr.		<b>Biochemistry-DSL</b> Absorption of Iron, Vitamin B12 & Folate <b>Dr.</b>
<b>Thursday</b> 13/06/2024	<b>Embryology</b> Development of Hindgut <b>Dr.</b>	<b>Histology</b> Colon <b>Dr.</b>	<b>Histology</b> Rectum <b>Dr.</b>	<b>11:00am to 12:00 pm</b>	<b>12:00 to 1:00 pm</b>	<b>PRIME</b> Sample size <b>Dr.</b>
				<b>Physiology</b> Disorders of Large intestine <b>Dr.</b>	<b>Biochemistry</b> Intestinal Juices <b>Dr.</b>	
<b>Friday</b> 14/06/2024	<b>Pak Studies</b> Natural Resources of Pakistan <b>Dr.</b>	<b>Physiology</b> General Disorders of the GIT <b>Dr.</b>	<b>Pathology</b> Carcinoma of colon & rectum <b>Dr.</b>	<b>Surgery</b> Colorectal malignancies <b>Dr.</b>	<b>SDL</b> (SLRC/Library )	<b>SDL</b> (SLRC/Library )

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**SESSION 2023-24**  
**WEEK-6**

**THEME 6: Carbohydrate Metabolism**

Days	8:00 to 10:00 am	10:00 am to 11:00 am	11:00am to 12:00 pm	12:00 to 1:00 pm	1:30 to 2:30 pm
<b>Monday</b> 24/06/2024	<b>SGDS</b> Batch A: Phy <b>Dr.</b> Batch B: Anat <b>Dr.</b> Batch C: Bio <b>Dr.</b>	<b>Biochemistry</b> Oxidative Phosphorylation <b>Dr.</b>	<b>Biochemistry</b> Respiratory Chain Inhibitors & Uncouples <b>Dr.</b>	<b>Biochemistry</b> Glycolysis -I <b>Dr.</b>	<b>Anatomy-DSL</b>  <b>Dr.</b>
<b>Tuesday</b> 25/06/2024	<b>SGDS</b> Batch A: Bio <b>Dr.</b> Batch B: Phy <b>Dr.</b> Batch C: Anat <b>Dr.</b>	<b>Biochemistry</b> Glycolysis -II <b>Dr.</b>	<b>Biochemistry</b> Oxidation of Pyruvate <b>Dr.</b>	<b>Biochemistry</b> Tricarboxylic Acid Cycle-I <b>Dr.</b>	<b>Physiology-DSL</b>  <b>Dr.</b>
<b>Wednesday</b> 26/06/2024	<b>SGDS</b> Batch A: Anat <b>Dr.</b> Batch B: Bio P <b>Dr.</b> Batch C: Phy <b>Dr.</b>	<b>Biochemistry</b> Tricarboxylic Acid Cycle-II <b>Dr.</b>	<b>Biochemistry</b> Gluconeogenesis <b>Dr.</b>	<b>Biochemistry</b> Hexose Mono Phosphate Shunt <b>Dr.</b>	<b>Biochemistry-DSL</b>  <b>Dr.</b>
<b>Thursday</b> 27/06/2024	<b>SDL</b> (SLRC/Library)	<b>Biochemistry</b> Uronic Acid Pathway <b>Dr.</b>	<b>Biochemistry</b> Galactose Metabolism <b>Dr.</b>	<b>Biochemistry</b> Fructose Metabolism <b>Dr.</b>	<b>Biochemistry</b> Glycogen Metabolism <b>Dr.</b>
<b>Friday</b> 28/06/2024	<b>Pak Studies</b> Industrial Development and Education of Pakistan <b>Dr.</b>	<b>Skill Lab</b> Anatomy <b>Dr.</b>	<b>Skill Lab</b> Physiology <b>Dr.</b>	<b>Skill Lab</b> Medicine <b>Dr.</b>	<b>SDL</b> (SLRC/Library)

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**SESSION 2023-24**  
**WEEK-7**

**THEME 7: Fat Metabolism**

Days	8:00 to 9:00 am	09:00 to 10:00 am	10:00 am to 11:00 am	11:00am to 1:00 pm		1:30 to 2:30 pm
<b>Monday</b> 15/07/2024	<b>Biochemistry</b> Fatty acid Synthesis-I (De Novo) <b>Dr.</b>	<b>Biochemistry</b> Fatty acid synthesis-II (De Novo) <b>Dr.</b>	<b>Biochemistry</b> Mobilization of stored fats <b>Dr.</b>	<b>PRACTICALS/SGDs</b> Batch A: Phy <b>Dr.</b> Batch B: Histo <b>Dr.</b> Batch C: Bio <b>Dr.</b>		<b>Anat-DSL</b>  <b>Dr.</b>
<b>Tuesday</b> 16/07/2024	<b>Biochemistry</b> Oxidation of Fatty Acids <b>Dr.</b>	<b>Biochemistry</b> Oxidation of Fatty Acids <b>Dr.</b>	<b>Biochemistry</b> Metabolism of Ketone bodies <b>Dr.</b>	<b>PRACTICALS /SGDs</b> Batch A: Bio <b>Dr.</b> Batch B: Phy <b>Dr.</b> Batch C: Histo <b>Dr.</b>		<b>Bio-DSL</b> Ketone Bodies <b>Dr.</b>
<b>Wednesday</b> 17/07/2024	<b>Biochemistry</b> Complex Lipid metabolism –I <b>Dr.</b>	<b>Biochemistry</b> Complex Lipid metabolism –II <b>Dr.</b>	<b>Biochemistry</b> Complex Lipid metabolism – III <b>Dr.</b>	<b>PRACTICALS/SGDs</b> Batch A: Histo <b>Dr.</b> Batch B: Bio <b>Dr.</b> Batch C: Phy <b>Dr.</b>		<b>Phy-DSL</b>  <b>Dr.</b>
<b>Thursday</b> 18/07/2024	<b>Biochemistry</b> Eicosanoid metabolism <b>Dr.</b>	<b>Biochemistry</b> Metabolism of Cholesterol-I <b>Dr.</b>	<b>Biochemistry</b> Metabolism of Cholesterol-II <b>Dr.</b>	<b>Biochemistry</b> Metabolism of Lipoproteins <b>Dr.</b>	<b>Biochemistry</b> Disturbance of Lipid metabolism <b>Dr.</b>	<b>.SDL</b> (SLRC/Library)
<b>Friday</b> 19/07/2024	<b>Pak Studies</b> The Principles of Pakistan Foreign Policy <b>Mr.</b>	<b>General Medicine</b> Hyperlipidemi as <b>Dr.</b>	<b>Skill Lab</b> Anatomy <b>Dr.</b>	<b>Skill Lab</b> Physiology <b>Dr.</b>	<b>Skill Lab</b> Medicine <b>Dr..</b>	<b>SDL</b> (SLRC/Library)

Ashura

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**SESSION 2023-24**  
**WEEK-8**

**THEME 8: Protein Metabolism**

Days	8:00 to 9:00 am	09:00 to 10:00 am	10:00 am to 11:00 am	11:00am to 1:00 pm	P R A Y E R S  B R E A K	1:30 to 2:30 pm
Monday 00/0/2024	<b>Biochemistry</b> Amino acid pool & chemical processes for dissimilation of proteins <b>Dr.</b>	<b>Biochemistry</b> Ammonia transport and effects of ammonia toxicity on brain <b>Dr.</b>	<b>Biochemistry</b> Urea cycle & its associated inherited disorders <b>Dr.</b>	<b>PRACTICALS/SGDs</b> Batch A: Phy <b>Dr.</b> Batch B: Histo <b>Dr.</b> Batch C: Bio <b>Dr.</b>		<b>Anat-DSL</b>  <b>Dr.</b>
Tuesday 00/0/2024	<b>Biochemistry</b> Metabolism of aromatic amino acids <b>Dr.</b>	<b>Pak Studies</b> Kashmir Dispute <b>Mr.</b>	<b>Biochemistry</b> Metabolism of Sulphur containing amino acids <b>Dr.</b>	<b>PRACTICALS /SGDs</b> Batch A: Bio <b>Dr.</b> Batch B: Phy <b>P Dr.</b> Batch C: Histo <b>P Dr</b>		<b>Bio-DSL</b> Urea Cycle <b>Dr.</b>
Wednesday 00/0/2024	<b>Biochemistry</b> Metabolism of Glycine, Serine & Alanine <b>Dr.</b>	<b>Biochemistry</b> Metabolism of Acidic Amino acids <b>Dr.</b>	<b>Biochemistry</b> Metabolism of Branched Chain Amino acids <b>Dr.</b>	<b>PRACTICALS/SGDs</b> Batch A: Histo <b>Dr.</b> Batch B: Bio <b>Dr.</b> Batch C: Phy <b>Dr.</b>		<b>Phy-DSL</b>  <b>Dr.</b>
Thursday 00/0/2024	SELF-STUDY (SLRC/ LIBRARY)					
Friday 00/0/2024	GIT, HEPATOBIARY & METABOLISM MODULE WRITTEN EXAM					

### 13 For inquiry and troubleshooting



**Please contact**

*Dr Humaira Ali*

*Associate Professor Anatomy*

*0333 5139383*

## 14 Module Evaluation Form

*This is an example of feedback form and real-time feedback will be obtained through an electronic link and/or your LMS.*

MBBS Year: \_\_\_\_\_ Block: \_\_\_\_\_ Module: \_\_\_\_\_

Date: \_\_\_\_\_

**1. (Unsatisfactory)      2 (Fair)                      3 (Satisfactory)                      4 (Good)                      5**  
**(Excellent)**

### Category: Course Contents

No.	Question	1	2	3	4	5
1	To what extent did the course contents align with the stated learning objectives of the module?					
2	How clear and comprehensive were the course materials provided in this module?					
3	Were the core topics adequately covered, ensuring a well-rounded understanding of the subject?					
4	How current and up-to-date were the course contents in reflecting recent advancements?					
5	Did the module incorporate real-world applications and case studies effectively?					
<b>Category: Learning Resources</b>						
6	Were the learning resources (e.g., textbooks, online materials, laboratory facilities) readily available and easily accessible?					
7	How helpful were additional learning resources such as supplementary readings or multimedia content?					
8	Did the module offer adequate support for research and independent study?					
9	Were digital resources and online platforms effectively utilized to enhance the learning experience?					
10	Were there sufficient opportunities for hands-on practice and practical application of knowledge?					
<b>Category: Teaching Methods</b>						
11	How well did instructors engage with students and create a supportive learning environment?					
12	Were diverse teaching methods (e.g., lectures, group discussions, simulations) effectively employed?					
13	How responsive were instructors to questions, concerns, and feedback from students?					
14	To what extent did instructors provide timely and constructive feedback on assignments and assessments?					
15	Were opportunities for collaborative learning and peer-to-peer interactions encouraged and facilitated?					
<b>Category: Engagement and Motivation</b>						
16	To what extent did the module use real-world examples and practical applications to engage students?					

17	How well were active learning techniques (e.g., problem-solving, case studies) integrated into the curriculum?					
18	Did the module provide opportunities for students to pursue their individual interests within the subject matter?					
19	Were assessments designed to challenge and motivate students to excel in their studies?					
<b>Category: Inclusivity and Diversity</b>						
20	How well did the module accommodate different learning styles and preferences among students?					
21	Were efforts made to include diverse perspectives, cultures, and backgrounds in the curriculum?					
22	How effectively were accommodations provided for students with varying levels of prior knowledge?					
<b>Category: Overall</b>						
<b>No.</b>	<b>Question</b>	<b>1 (Very Poor)</b>	<b>2 (Poor)</b>	<b>3 (Fair)</b>	<b>4 (Good)</b>	<b>5 (Excellent)</b>
23	How would you rate the overall quality of this module?					

## 15 Students Diary/Notes

[illegible]

PROGRESS:\_\_\_\_\_

**ACHIEVMENT:**