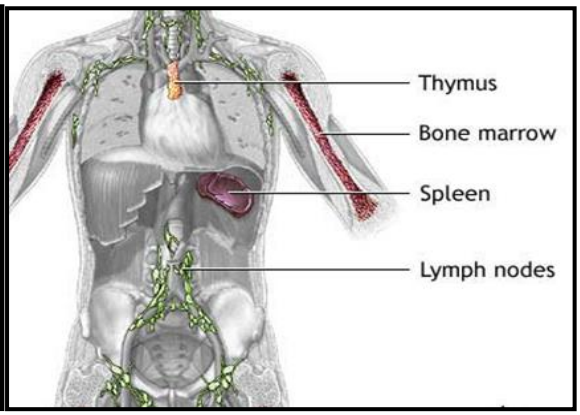
MODULE SPECIFICATIONS

Mechanism of Disease and Therapy I

2023-2024




I Parasitology

1. Basic & Professional information of the module	
A. Basic Information	
University	Benha
Faculty	Medicine
Program	Bachelor of Medicine & Surgery (Integrated program 5+2)
Department/s offering the module	Microbiology & Immunology and Parasitology
Academic year	2023-2024
Phase	One
Level	1st level
Semester	1st semester
Date of last specification approval	**Faculty Council No. 468 Date: 18/10/2022**
Name of the module	Mechanism Of Disease and Therapy I
Code of the module	MDT I-113
Credit hours	6 credit hours: 40% of total credit hours for lectures = 1.6 CHs 30% of total credit hours for clinical = 1.2 CHs 30% of total credit hours for classroom activities = 1.2 CHs
Total teaching hours	Classified as the following lectures = 1.6 x1x15= 24 hours Clinical = 1.2 x 2 x15= 36 hours Activities = 1.2 x2x15=36 hours
Total marks	150 marks (60 for final exam, 45 for practical exam, 36 for mid assessment, 9 for attendance and participation in classroom activities)

B- Professional Information

1 – The Overall Aims of The Module:

The overall aims of this module are to provide the undergraduate medical students with:

- Basic scientific knowledge of general microbiology, immunology and parasitology.
- Essential practical and clinical skills necessary for general bacteriology, virology, mycology and microbial genetics and helping the students to know and understand the action and resistance of different antimicrobial agents.

- Fundamental aspects of the structure and function of the immune system, its role in the pathophysiology of infectious and immune mediated diseases as well as the different methods used to diagnose and manage such diseases.
- Essential practical and clinical skills necessary for proper dealing with common immune problems that will be met during practicing medicine.
- Fundamental basic knowledge and skills essential for proper evaluation and management of the common parasitological health problems in local and regional community including taxonomy, classification, host parasite relationship and concepts of medical parasitology.
- Basic ethical, professional and communication skills and attitude essential for establishing & maintaining good doctor/ patient relationship, appropriate attitudes with colleagues and para- medicals.

2 – Competencies

Competency Area I of program: The graduate as a health care provider

1.4. Evaluate & prioritize the patients' medical conditions and their differential diagnosis.

1.4.1 Solve a case of antimicrobial resistance.
1.4.2. Solve cases on immune system disorders.

1.5. Choose the most suitable diagnostic and therapeutic investigative tools in a cost/benefit manner.

1.5.1 Distinguish the results of Gram staining and Ziehl-Neelsen staining and microscopic examination of stained preparations.
1.5.2 Mention tests used for diagnosis of bacterial, viral and fungal infections.
1.5.3 Discuss the basics of antimicrobial chemotherapy and resistance, their mode of action and chemoprophylaxis.
1.5.4 Illustrate principle, types and uses of serological reactions in diagnosis of diseases.
1.5.5 Discuss mechanisms of immunity and diagnosis of the common immunological disorders.
1.5.6 Identify principles of parasitological diagnostic techniques.

1.7. Implement the basic and clinical sciences practical skills & procedures to solve the medical problems met during practice of medicine.

1.7.1 Describe various methods of transmission of infectious diseases, infection cycle and infection control measures.

1.7.2 Describe the viral structure and viral replication steps and be aware of the fate of viral infection**,** pathogenesis of viral infection.

1.9. Combine all obtained results either from history taking, medical examination and investigations in order to diagnose the medical problems.

1.9.1. Interpret common investigative and diagnostic tools including: laboratory assays, and functional assessment tests in diagnosis of white blood cell disorders.

Competency Area II of program: The graduate as a health promoter

2.4 Classify different health risks (demographic, occupational and environmental) that place individuals at risk for injury, endemic and chronic diseases.

2.4.1 Describe host parasite relationship and microbial pathogenesis.

2.4.2 Mention methods of transmission & spread of infectious diseases

2.4.3 Describe the viral structure and viral replication steps and be aware of the fate of viral infection

2.4.4 Define nosocomial infections, their underlying factors, their sources and mode of transmission and basics of infection control measures.

2.4.5 Classify of important protozoa affecting human being.

2.4.6 Classify arthropods according to morphology.

2.4.7 Classify protozoa according to morphology.

2.5. Discuss the principles of disease prevention and help to increase the awareness and capacity of his/her community individuals.

2.5.1 List different types of vaccines, enumerate advantages & disadvantages of each type and define recent trends of vaccination.

2.9 Apply infection control principals and safety measures during clinical practice.

2.9.1 List physical & chemical methods of sterilization.

Competency Area III of program: The graduate as a professional

3.1. Demonstrate respect, appropriate professional behavior and establish good relations in all aspects of his/her practice.

3.1.1. Work with his colleagues in a team work inside the lab, as well as solving problems.

3.1.2. Behave ethically with his teachers, colleagues as well as other personnel in the field.

3.1.3. Deal with any conflicts of interest in a proper manner.

3.1.4. Participate in inter-professional activities and collaborative learning to improve personal practice.

Competency Area IV of program: The graduate as a scholar and scientist

4.1. Recognize the etiology including the role of genetics, immunological, microbiologic, metabolic, neoplastic, traumatic and toxic causes and the pathogenesis of the common diseases & illnesses.

4.1.1 List major groups of human pathogens.

4.1.2 Mention general bacterial morphology and structure of bacterial cell.

4.1.3 Describe the bacterial physiology, requirements and products.

4.1.4 Enumerate bacterial virulence factors.

4.1.5 Outline the host parasite relationship and microbial pathogenesis.

4.1.6 List sources and reservoirs of infection.

4.1.7 List Methods of transmission & spread of infectious diseases.

4.1.8 Define plasmid, transposons, phage, and types of gene transfer, application of recombinant DNA technology and gene therapy.

4.1.9 Understand immunological basis of hypersensitivity reactions and autoimmune diseases.

4.1.10 Identify immune response against tumour & transplanted graft.

4.8. Interpret common investigative and diagnostic tools including: imaging, electrocardiograms, laboratory assays, pathologic studies and functional assessment tests.

4.8.1 Prepare and interpret stained films.

4.8.2 Interpret biochemical reactions and antibiotic sensitivity tests.

4.8.3. Identify and interpret different serological reactions.

Competency Area V of program: The graduate as a member of the health team and a part of the health care system

5.3. Implement strategies to promote understanding, manage differences, and resolve conflicts in a manner that supports collaborative work.

5.3.1. Work collaboratively in a team with other colleagues to maximize benefits.

5.3.2. Understand and respect the different cultural believes and values in the community they learn.

5.4. Apply leadership skills to enhance team functioning, the learning environment, and/or the health care delivery system.

5.4.1. Practice leadership skills during practical and media sessions.

Competency Area VI of program: The graduate as a lifelong learner and researcher

6.1. Regularly reflect on and assess his/her performance using various performance indicators and information sources.

6.1.1. Consider the information resources including the available electronic facilities to update knowledge and to manage and manipulate information.

6.2. Develop, implement, monitor, and revise a personal learning plan to enhance professional practice.

6.2.1. Engage and review all learning plan to improve professional practice.

3- Contents

Contents of module	Lectures	Practical	Class Activities			Total for each topic
			Tutorial	Case Based Learning	DSL	
1- Cell injury and tissue deposit	4 (16.6%)	2(5.5%)				6(6.25%)
2- Inflammation	5(20.8%)	4(11.11%)	4(14.2%)		2(33.3%)	15(15.6%)
3- Circulatory disturbance	2(8.3%)	4(11.11%)			2(33.3%)	8(8.3%)
3-Neoplasia	1(4.1%)	6(16.6%)	4(14.2%)	2(100%)	2(33.3%)	15(15.5%)
4- Bacterial physiology & Metabolism	1(4.1%)	10(27.7%)	2(7,1%)			13(13.5%)
5- Host parasite relationship & gene therapy			2(7,1%)			2(2.1%)
6- Bacterial genetic	1(4.1%)					1(1.1%)
7-Antimicrobial agent	1(4.1%)					1(1.1%)
8-General virology	2(8.3%)		4(14.2%)			6(6.25%)
9-General mycology	1(4.1%)					1(1.1%)
10-Nosocomial infection			2(7,1%)			2(2.1%)

11-Heleminths	4(4.1%)	6(16.6%)	2(7,1%)			12(12.5%)
12-Protozoa	2(8.3%)	2(5.5%)	2(7,1%)			6(6.25%)
13-Arthropode		2(5.5%)	4(14.2%)			6(6.25%)
14-Diagnostic parasitology			2(7,1%)			2(2.1%)
Total	24	36	28	2	6	96

4– Teaching and Learning Methods

- **Modified Lectures**: A modified lecture format, generally presented in a manner of interaction between students and the lecturers, is now commonly presented as video or any aiding materials.
- **Practical sessions**.
- **Tutorials:** Small group tutorials on special topics will be organized for the purposes of enhancing the students' general knowledge and overall understanding. It allows students to apply newly acquired knowledge and it is suitable for higher order cognitive objectives.
- **Case Based Learning:** Clinical presentations will be organized as a series of multi-disciplinary sessions of small-group teaching led by staff. Satisfactory attendance and performance in practical classes and at clinical sessions are part of the final assessment at such level.
- **Directed Self Learning (DSL)**: The DSL sessions will promote self-directed learning and thus, time will be available for further study by the students using all available- learning resources including electronic learning materials.
- **Online lectures (zoom app.)& Lectures on Benha E- learning platform.**

موقع منصة التعليم الإلكتروني الخاص بجامعة بنها
https://elearning.bu.edu.eg/

Method of teaching	Evidence	ILOs
Modified lectures	CDs of lectures including (video films, brain storming, problem solving, etc.…)	***Competency Area I of program: The graduate as a health care provider.*** 1.7.1 , 1.7.4 1.9.1, 1.9.3
On line lectures (zoom app.)	موقع منصـــة التعليم الالكترونى الخاص بجامعة بنها	

Lectures on Benha E-learning platform	https://elearning.bu.edu.eg/	***Competency area II: The graduate as a health promoter.*** 2.1.1 ,2.7.1 ***Competency Area III of program: The graduate as a professional.*** 3.1.1 To 3.1.4 ***Competency Area IV of program: The graduate as a scholar and scientist.*** 4.1. 1 . 4.1.34 4.2.1 ,4.2.2 1.7.1 , 1.7.4 1.9.1, 1.9,3 2.1.1 ,2.7.1 4.1.1 . 4.1.34 4.2.1 ,4.2.2 ***Competency Area VI of program: The graduate as a lifelong learner and researcher.*** 6.1.1 ,6.2.1
Case based learning	Samples of student activities	
Directed self learning	Samples of student activities	
Practical sessions	Available videos on the platform Available slides , Jars & microscopic specimen	***Competency Area I of program: The graduate as a health care provider.*** 1.5.1 To 1.5.5 ***Competency area II: The graduate as a health promoter.*** 2.9.1 ***Competency Area IV of program: The graduate as a scholar and scientist.*** 4.1.1 To 4.1.34

5- Student Assessment Methods

1- **Formative assessment :** This form of assessment is designed to give you feedback to help you to identify areas for improvement. It includes a mixture of MCQs, short answer-questions (SAQs), problem -solving exercises and independent learning activities in all subjects. These will be given during tutorial sessions and practical. The answers are presented and discussed immediately after the assessment.

2- **Summative assessment:** This type of assessment is used for judgment or decisions to be made about your performance.

In this Module your performance will be assessed according to the following:

- Continuous Assessment 30% (30 marks)
- Practical 30 % (30 marks)
- Final Exam 40% (40 marks)

Total = 100 % (100 mark)

Assessment Schedule

o Assessment 1 (mid-semester): The beginning of the 3rd week of the module
o Final assessment: At the end of 4 weeks duration of the module
o Practical Assessment: The day following the final exam

Tool	Evidence	Purpose (ILOs)
Written examination: • MCQs • Short essay	Attached model of examination	***Competency Area I of program: The graduate as a health care provider.*** 1.7.1 , 1.7.4 1.9.1, 1.9.3 ***Competency area II: The graduate as a health promoter.*** 2.1.1 ,2.7.1 ***Competency Area III of program: The graduate as a professional.*** 3.1.1 To 3.1.4 ***Competency Area IV of program: The graduate as a scholar and scientist.*** 4.1. 1 . 4.1.34 4.2.1 ,4.2.2 1.7.1 , 1.7.4 1.9.1, 1.9,3 2.1.1 ,2.7.1 4.1.1 . 4.1.34 4.2.1 ,4.2.2 ***Competency Area VI of program: The graduate as a lifelong learner and researcher.*** 6.1.1 ,6.2.1
Practical (OSPE)	Practical exam	***Competency Area I of program: The graduate as a health care provider.*** 1.5.1 To 1.5.5 ***Competency area II: The graduate as a health promoter.*** 2.9.1 ***Competency Area IV of program: The graduate as a scholar and scientist.*** 4.1.1 To 4.1.34

Class activity	Portfolio	***Competency Area I of program: The graduate as a health care provider.*** 1.7.1 , 1.7.4 1.9.1, 1.9.3 ***Competency area II: The graduate as a health promoter.*** 2.1.1 ,2.7.1 ***Competency Area III of program: The graduate as a professional.*** 3.1.1 To 3.1.4 ***Competency Area IV of program: The graduate as a scholar and scientist.*** 4.1. 1 . 4.1.34 4.2.1 ,4.2.2 1.7.1 , 1.7.4 1.9.1, 1.9,3 2.1.1 ,2.7.1 4.1.1 . 4.1.34 4.2.1 ,4.2.2 ***Competency Area VI of program: The graduate as a lifelong learner and researcher.*** 6.1.1 ,6.2.1

6- List of References

1. **MICROBIOLOGY**

- Review of medical microbiology and immunology Warren Levinson Mc Grow Hill – Longe edition 13 , 2014

- Self assessment &review microbiology & Immunology .Rachna Chaurasia, Anshul Tain, Suman P Singh.5th edition.2010

2. **PARASITOLOGY**

- -Medical Parasitology-Lecture Notes, authorized by the Department. Edited by Dept. of Parasitology, Benha Faculty of Medicine, last edition.

- -CD for practical Module. Edited by Dept. of Parasitology, Benha Faculty of Medicine, last edition.

- Parasites and Infectious Disease: Discovery by Serendipity and Otherwise by Gerald Esch ; Cambridge University Press; ISBN: 0521675391.

- Molecular Mechanisms of Parasite Invasion. By Barbara Burleigh and D Soldati-Favre. Landes Bioscience and Springer Science + Business Media. 7th edition. 2008. ISBN 978-0-387-78266-9.

- Advances in Parasitology: Control of Human Parasitic Diseases by David H. Molyneux,volume-61. Elsevier Ltd.
- - Manson's Tropical Diseases, Cook GC (ed). London: WB Saunders.

Websites:

- - http://www.epu-eg.com/
- - http://www.parasitesonline.net/
- - http://pathmicro.med.sc.edu/book/parasit-sta.htm
- - http://www.dpd.cdc.gov/dpdx/HTML/Para_Health.htm

7- Facilities Required for Teaching and Learning

Method	Facilities
Lectures	Lectures halls, Computers, Data show
distance learning	Benha E- learning platform
Practical classes	Clinical cases, Instruments, Skill lab.
Tutorials	Small Halls, Data show
Case based Learning	Small Halls, Clinical cases.
Directed self -learning(DSL)	EKB

Module Coordinator:

Lecturer : Amira El-Sayed

General outlines of the module

1-lectures topics and its time table

Site: at the main auditorium hall

NO.	Department	Lecture titles	Staff member	Date
1	Microbiology	Introduction to medical microbiology	أ.د عبير أبو العزم	27-12-2022
2	Parasitology	Introduction to medical parasitology	ا.د.جيهان عبد الرحمن	27-12-2022
3	Parasitology	Trematodes	ا.د.جيهان عبد الرحمن	28-12-2022
4	Pathology	Cellular adaptation ,disturbance of growth	د.رنا محمد السعيد	28-12-2022
5	Pathology	Reversible cell injury	د.رنا محمد السعيد	28-12-2022

6	Parasitology	Cestodes	اد. ايمان عبد الرحمن	31-12-2022
7	Parasitology	Nematodes	اد. ايمان عبد الرحمن	31-12-2022
8	Pathology	Irreversible cell injury	اد هبه محمد رشاد	1-1-2023
9	Pathology	Cellular accumulation	د.مني أحمد	1-1-2-2023
10	Pathology	Acute inflammation	د/ ايمان الجندي.	1-1-2023
11	Pathology	Types of acute inflammation	د/ اميره السيد	2-1-2023
12	Pathology	Chronic inflammation Immunologic basis of granuloma	د/ اميره السيد	2-1-2023
13	Pathology	Granuloma (T.B)	ا د أمنيه يوسف	3-1-2023
14	Pathology	Granuloma(Bilharziasis)	د.نجلاء حامد	3-1-2023
15	Parasitology	Protozoa I	اد. همت صلاح	4-1-2023
16	Parasitology	Protozoa II	اد. همت صلاح	4-1-2023
17	Pathology	Ischemia& Infarction **Hyperemia , venous congestion**	اد. مروة سعيد	5-1-2023
18	Pathology	Thrombosis& embolism ,edema and shock	اد.رشا محمود	8-1-2023
19	Microbiology	Bacterial genetics	أ.د جمال عامر	8-1-2023
20	Microbiology	Antimicrobial agents	اد/ السيد عبد الغني	10-1-2023
21	Pathology	General character of neoplasia, Preneoplastic conditions and and malignant tumors	د.رشا محمود	10-1-2023
22	Microbiology	General mycology	أ.د سوسن عبد الرحمن	16-1-2023
23	Microbiology	General virology	أ.د أحمد الجزار	17-1-2023
24	Microbiology	General virology	أ.د أحمد الجزار	17-1-2023

2-PRACTICAL TRAINING AND ITS TIME TABLE

Site :the department practical room

	Department	Practical title	Staff member	Date
P1	**Microbiology**	**Laboratory safety**	**د/ هبه د/ يارا د/ ريهام د/ يارا**	**27-12-2022 28-12-2022**
P2	**Microbiology**	**Sterilization**	**د/ هبه د/ يارا د/ ريهام د/ يارا**	**27-12-2022 28-12-2022**
P3	**Parasitology**	**Trematoda**	**د اميره صلاح د رباب د مها د نورهان د/ايمان د/الاء**	**29-12-2022 31-12-2022**

P4	Pathology	Cellular adaptation& accumulation	د/ندى د/شروق صبري د/شروق السيد د/ندى	29-12-2022 31-12-2022
P5	Parasitology	Nematoda	د غاده- د دعاء الاء- د صفاء د نورهان د صفاء	1-1-2023 2-1-2023
P6	Pathology	Acute Inflammation	د/ايه عبد العزيز د/نسمه د/ايه عبد العزيز د/نسمه	1-1-2023 2-1-2023
P 7	Micro	Sterilization	د/ هبه د/ مروه د/ نور د/ يارا	3-1-2023 4-1-2023
P8	Pathology	Chronic Inflammation	د/سارة مدكور د/هدير د/سارة مدكور د/هدير	3-1-2023 4-1-2023
P9	Para sitology	Nematodes	د نجاة- د فايزه د صفاء -د نورهان- د مها د-ايمان	5-1-2023 8-1-2023
P10	Microbiology	Culture media	د/مروه د/ نور د/ ريهام د/ نور	5-1-2023 8-1-2023
P11	Parasitology	Protozoa	د دينا -د فايزه د الاء -د ايمان	9-1-2023 10-1-2023
P12	Pathology	haemodynamic disorders	د/ندى د/شروق السيد د/مرام د/شروق صبري	9-1-2023 10-1-2023
P13	Pathology	benign tumors	د/هبه د/ايه سلامه د/هبه د/ايه سلامه	11-1-2023 12-1-2023
P14	Parasitology	Arthropods	د هبه د اميره ثناء د مها د نورهان د مها- د صفاء	11-1-2023 12-1-2023
P15	Pathology	Malignant tumors	د/نهال د/نورهان د/نهال د/نورهان	16-1-2023 17-1-2023
P16	Micro	Biochemical reaction &bacterial identification	د/مروه د/ نور د/ هبه د/ يارا	16-1-2023 17-1-2023
P17	Pathology	Revision	د/نسمه د ايه عبد العزيز د نهال د شروق صبري	18-1-2023

P18	Pathology	Revision	د/ايه سلامه د/شروق السيد د/شروق صبري د/ندى	19-1-2023

3-TUTORIAL AND ITS TIME TABLE

Site : at the academic department mentioned in weekly timetable

	DEPARTMENT	TUTORIALS TITLE	STAFF MEMBER	DATE
T1	Microbiology	bacterial physiology	د/ريهام د/ هبه د/اميره د / دعاء د/ محمد د/حسناء	31-12-2023
	Parasitology	Heterophyes heterophyes _H.nana_loa loa_Entrobious vermicularis	د غاده داميره ثناء د دعاء د.نجاة	2-1-2023
T3	Microbiology	host parasite relationship	د/شيماء د/ مروه د/رشا د/ مايسه د/ حسناء د/ اماني	3-1-2023
T4	Pathology	Granuloma	دزينب -د مني -د اميره د- ابتهال د- ايمان سعيد	4-1-2023
T5	Parasitology	Entamoeba histolytica Leishmaniasis ,	داميره صلاح د فايزه د.دينا د هبه	5-1-2023
T6	Microbiology	nosocomial infection	د/شيماء د/ مروه د/رشا د/ مايسه د/ اماني د/ دعاء	9-1-2023
T7	Parasitology	Arthropods I	د أسماء الخولى	9-1-2023
T8	Pathology	Repair	د اميره د نجلاء دابتهال د رنا د مني	10-1-2023

T9	**Parasitology**	**arthropods II**	د أسماء الخولى	12-1-**2023**
T0	**Microbiology**	**Needle prickle**	**د/ اماني د/ اميره د/ مايسه د/ حسناء د/ ريهام د/ دعاء**	12-1-**2023**
T11	**Pathology**	general aspect of neoplasia	د ابتهال دنجلاء د حنان د رنا دايمان الجندي	16-1-**2023**
T12	**Microbiology**	**pathogens and lab diagnosis**	**د/ شيماء د/ مروه د/ محمد د/ اماني د/ دعاء د/ اميره**	17-1-**2023**
T13	**Pathology**	general aspect of neoplasia	د حنان د/ مروه سعيد-د اميره د ايمان عادل د ايمان الجندي	18-1-**2023**
T14	**Parasitology**	**diagnostic technique**	**د مروه نجيب**	19-1-**2023**

4-CASE BASED AND ITS TIME TABLE

Site : at the academic department mentioned in

	DEPARTMENT	**CP** weekly timetable	**STAFF MEMBER**	**DATE**
CP1	**PATHOLOGY**	**LOCALLY MALIGNANT TUMORS**	ا.د/ رشا محمود	18-1-2023

5-SELF DIRECTED LEARNING (SDL)

	DEPARTMENT	SDL	DATE
SDL1	**PATHOLOGY**	Bacterial infection	8-1-**2023**
SDL2	**PATHOLOGY**	Gangrene	11-1-**2023**
SDL3	**PATHOLOGY**	Paraneoplastic syndrome	16-1-**2023**

ILOs of the module

1-lectures

NO.	Department	Lecture titles	ILOs
1	Microbiology	Microbiology introduction	**2 a.8** Recognize general bacterial morphology and structure of bacterial cell. **2 a.9** Recognize major groups of human pathogens
2	Parasitology	Parasitology introduction	**2 a.4** Define parasite and types of parasites, hosts and type of hosts, host parasite relationship. **2 a.5** Define mutualism, commensalism and parasitism. **2 a.6** identify effect of parasites on the host, basic concepts in medical parasitology: **2 a.7** classify medical parasitology (protozoology, helminthology and entomology
3	Parasitology	Trematodes	**2a.22** identify general characteristic morphology of class Trematod and general life cycle of class Trematoda. **2 a 23** Classify trematodes with.ex. Schistosomes, life cycle gross morphology and biology
4	Pathology	cellular adaptation	**2 a.10** Define cell response to injury **2 a.11** Explain different causes, mechanisms, effects, types of cell injury and morphology (gross & microscopic) of tissues affected

			2 a.12 Define hypertrophy **2 a.13** Enumerate the causes of hypertrophy **2 a.14** Define hypertrophy **2 a.15** Enumerate the causes of hypertrophy **2 a.16 Recognize** the causes of decreased growth (agenesis, hypoplasia, aplasia and atrophy) **2 a.17** Distinguish between the disorders of differentiation of the cells (dysplasia and metaplasia) **2 a.18** Identify the causes and examples of each type of disorder
5	Pathology	Reversible cell injury	**2 a.19** Identify the effect of the different injurious agents on the cell cytoplasm and nucleus. **2 a.20**Describe the normal cellular structures (in Histology course), he will be easily able to recognize the abnormalities in the cell cytoplasm as well as the nucleus. **2 a.21** Explain the morphological, biochemical and metabolic changes in the cell cytoplasm which are divided into the followings: • Cloudy Swellings. • Hydropic degeneration. • Hyalinosis of the cell. • Fatty Changes.
6	Parasitology	Cestode	**2a.44** identify general characteristic morphology of class Cestoda and general life cycle of class Cestoda. **2 a 45** Classify Cestoda with.ex. *Hymenolepis* according to habitat, life cycle gross morphology and biology
7	Parasitology	Nematodes	**2a.47** identify general characteristic morphology of class Nematoda and general life cycle of class Nematoda. **2 a 48** Classify Nematoda with.ex. *Entrobius vermicularis* and Loa Loa life cycle gross morphology and biology according to habitat,

			life cycle gross morphology and biology.
8	Pathology	irreversible cell injury	**2 a.25** Define and correctly use "necrosis", **2 a.26** Distinguish the various categories of necrosis (coagulation, liquefaction, caseous necrosis, enzymatic fat necrosis, fibrinoid necrosis). Tell how you know a cell is dead **2 a.27** List the different types of necrosis and its mechanisms **2 a.28** Describe the examples for each type accordingly **2 a.29** Define what is apoptosis **2 a.30** Differentiate between Apoptosis and necrosis **2 a.31** Identify the different types of apoptosis (physiologic and pathologic). **2 a.32** Explain the mechanism of apoptosis and the factors controlling it and its importance in embryogenesis and carcinogenesis. .
9	Pathology	cellular accumulation	**2 a.34**Identify the different types of amyloidosis (classification), **2 a.35 Identify** the causes of its deposition and its distribution in the different body organs **2 a.36** Describe the macroscopic appearance as well as the histopathological appearance and the distribution of this abnormally formed protein in examples of different body organs by examining the involved organs under the microscope in the histopathology lab **2 a.37** Diagnose amyloidosis during life and in vitro **2 a.38** Differentiate between the different types of abnormal calcification (Dystrophic calcification, metastatic calcification and stone formation **2 a.39** Identify abnormal calcification in tissues both microscopically and macroscopically

			2 a.40 Differentiate between Exogenous pigmentation and endogenous **2 a.41** Define hemochromatosis **2 a.42** Describe its pathogenesis and effect **2 a.43** Differentiate between primary and secondary hemochromatosis
10	Pathology	Acute inflammation	• **2 a.49** Define and use in proper context: abscess, cellulitis, chemotaxis, edema, effusion, emigration, exudate fibrinous, margination, phagocytosis, purulent pus, pyogenic, resolution, serosanguineous, serous, suppurative. • **2 a.50**Describe the classic vascular changes and cellular events of the inflammatory reaction. • **2 a.51**List & Discuss the five cardinal signs of inflammation in terms of pathogenesis and underlying morphologic changes. • **2 a.52** Describe the steps involved in phagocytosis. • **2 a.53** Explain fate of acute inflammation • **2 a.54** List the systemic manifestations of acute inflammation • **2a.55** Develop and use the nomenclature to describe inflammation in the various tissues and organs
11	Pathology	Types of acute inflammation	2a.56 Differentiate between supuurative and non-suppurative inflammation with examples 2a.57 List the types of non-suppurative& suppurative inflammation 2a 58 Define an abscess, 2a 59 Define cellulitis, 2a 60 Define furuncle, 2a 61 Define carbuncle 2a 62Describe the pathogenesis and morphological features of abscess

			2a 63 Enumerate complications of abscess 2 a 64 Define catarrhal, with examples 2 a 65 Define Serous with examples 2 a 66 Define Fibrinous with examples 2 a 67 Define serofibrinous with examples 2 a.68 Describes the morphological features of serofibrinous inflammation
12	Pathology	Chronic inflammation And Immunological basis of granuloma	**2 a 72** Compare and contrast acute versus chronic inflammation with respect to causes, nature of the inflammatory response, and tissue changes, basis of immune response of inflammation **2 a 73** Define granuloma **2 a 74** Discuss causes, types of granuloma **2 a 75 R**ecognize the immunological basis of granuloma, **2 a 75** Comprehend the etiopathogeneses of granulomatous inflammations (type IV hypersensitivity) **2a.76** State the pathologic basis of this disease, its reaction inside the different body organs and its microscopic and gross picture
13	Pathology	Granuloma (TB)	**2 a 77**Define tuberculosis **2 a 78** List predisposing factors of TB **2 a 79**Enumerate routes of infection of TB **2 a 80** Illustrate pathogenesis of TB **2 a 81**Identify morphology of TB **2 a 82** Enumerate fate of TB **2 a 83** Compare types of TB **2 a 84** Identify pathological features of pulmonary TB **2 a 85** List fate of pulmonary TB **2 a 86**Identify pathological features of intestinal TB **2 a 87** List fate of intestinal TB
14	Pathology	Granuloma Bilharziasis	**2 a 88**Define bilharziasis **2 a 89** Identify pathogenesis of bilharziasis

			2 a 90 Define bilharzial cystitis **2 a 91** Compare pathological lesions of bilharzial cystitis **2 a 92** List complication of bilharzial cystitis **2 a 93** Define intestinal bilharziasis **2 a 94** Compare pathological lesions of intestinal bilharziasis **2 a 95** List complication of intestinal bilharziasis **2 a 96** Identify pathogenesis of hepatic bilharziasis **2 a 97** Enumerate complication of hepatic bilharziasis
15	Parasitology	Protozoa I	2a.69 identify general characteristic morphology of class protozoa and general life cycle of class protozoa. 2 a 70 Classify protozoa with.ex. Plasmodium spp life cycle gross morphology and biology
16	Parasitology	Protozoa II	**2 a.71** Describe Leishmaniasis life cycle morphology and biology
17	Pathology	Ischemia& Infarction,hyperemia ,congestion,Hge.	**107** Define ischemia **2a 108 Outline types of ischemia** **2a. 109** Explain causes ,types ,morphological features of infarctions . **2a 121**dentify and differentiate between Active hyperaemia and passive hyperaemia **2a 122** Enumerate types of congestion with examples **2a 127** Enumerate causes of Haemorrhage, **2a 128** identify its different types whether it is external, internal or interstitial.
18	Pathology	Thrombosis& embolism ,edema and shock	. **2a.110** Define what is thrombosis, **2a 111**list causes of its formation, **2a 112 D**escribe mechanism of its formation and its morphology **2a 113** Identify sites of its deposition. **2a. 114** Enumerate the effects (different pathological lesions) of each on different organs if they are formed

			inside its vasculatures and their fate in the body. 2a 115 Define embolism, **2a 116**Identify its different types, **2a 117** List causes of its formation, **2a 118** Identify sites of its deposition and its effects as well **2a 123** Define oedema **2a 124**, Define transudate **2a 125** Define exudate. **2a 126** outline the mechanisms of oedema fluid whether it is localizedor generalized., Pitting or non pitting **119** Define shock **2a 120** Recognize types, pathogenesis, manifestations, and complications
19	Microbiology	Bacterial genetic	2 a.105 Define plasmid, transposons, phage, and types of gene transfer, application of recombinant DNA technology and gene therapy
20	Microbiology	Antimicrobial agents	**2 a.106** Discuss the basics of antimicrobial chemotherapy and resistance, their mode of action and chemoprophylaxis, mechanism of action of clinically used antibiotics, mechanisms and origin of drug resistance, antimicrobial chemoprophylaxis &evaluation of antimicrobials activity
21	Pathology	general characters of neoplasia	**2 a.142** Explain the different points related to neoplasia regarding its definition, aetiology, its classifications to benign and malignant epithelial tumours, benign and malignant connective tissue tumours, . **2 a.143**Contrast benign from malignant tumours. **2 a.144** Understand clinical effects of neoplasms **2 a.145** know the diagnostic modalities for neoplasm **2 a. 151** Identify various types of malignant tumours

			2 a.152 Define grading and staging of cancer, **2 a.153** Enumerate methods of spread of tumours (local, blood, lymphatic, transcoelomic and implantation), **2 a.154** Recognize the prognosis of tumours and its effects on the host. **2 a. 155** Describe methods and mechanisms of metastasis. **2 a.157Define teratoma** **2 a.158 Identify its sites and types** **2 a.159Identify embryonic tumuors** **2 a.160 define hamartoma**
22	Microbiology	General mycology	**2 a.137** Identify Importance of fungi, 2 a.138 illustrate classification of fungi and 2 a.139 define mycotoxins,
23	Microbiology	General virology	2 a.135 Describe the viral structure and viral replication steps and be aware of the fate of viral infection ,Pathogenesis of viral infection.
24	Microbiology	General virology	2 a.136 Describe the viral structure and viral replication steps and be aware of the fate of viral infection , Pathogenesis of viral infection

2-practical

	Department	Practical title	Objectives
P1	**Microbiology**	**laboratory safety**	**2 c.1** Identify laboratory biohazards and apply laboratory safety measures
P2	**Microbiology**	**sterilization**	**2 c.7** List Physical &chemical methods of sterilization
P3	**Parasitology**	**Trematodes**	**2 c.8** Identify important helminthes affecting human being.
P4	**Pathology**	**cellular adaptation& accumulation**	**2 c.3** Describe the gross features of surgically removed specimen concerning cellular adaptation &accumulation . **2 c.4** Use the light microscope to examine and identify microscopic findings of some selected examples of cellular adaptation &accumulation.. **2 c.5** Write a pathological request concerning main features of gross appearance of **2 c.6** Write a pathological report.

P5	**Parasitology**	**Helminthes(cestodes)**	**2 c.8** Identify important helminthes affecting human being.
P6	**Pathology**	**Inflammation 1**	**2 c.9** Describe the gross features acute and chronic examples of inflammation. **2 c.10**Use the light microscope to examine and identify microscopic findings of some selected examples of acute and chronic inflammation as well as tissue repair .. **2 c. 11**Write a pathological request concerning main features of gross appearance of inflammation and repair. **2 c.12** Write a pathological report.
P7	**Microbiology**	**sterilization**	**2 c.7** List Physical &chemical methods of sterilization
P 8	**Pathology**	**Inflammation 2**	**2 c.9** Describe the gross features acute and chronic examples of inflammation. **2 c.10**Use the light microscope to examine and identify microscopic findings of some selected examples of acute and chronic inflammation as well as tissue repair .. **2 c. 11**Write a pathological request concerning main features of gross appearance of inflammation and repair. **2 c.12** Write a pathological report.
P9	**Parasitology**	**Nematodes**	**2 c.8** Identify important helminthes affecting human being
P10	**Microbiology**	**Culture media**	**2 c..24** Identify different methods used in diagnosis of bacterial infections
P11	**Parasitology**	**Protozoa**	**2 c.15** Identify important protozoa affecting human being
P12	**Pathology**	**haemodynamic disorders**	**2 c.16** Describe the gross features of some examples of haem dynamic disorders **2 c.17** Use the light microscope to examine and identify microscopic findings of some selected examples of haemdynamic disorders. **2 c.18** Write a pathological request concerning main features of gross appearance of haemdynamic disorders **2 c.19** Write a pathological report.
P13	**Pathology**	**benign tumors**	**2 c.20** Describe the gross features of benign tumors with examples **2 c.21** Use the light microscope to examine and identify microscopic findings of some selected examples of benign tumors.

			2 c.22 Write a pathological request concerning main features of gross appearance of benign tumors **2 c.23** Write a pathological report.
P14	**Para**	**Arthropods**	**2 c.26** Identify important arthropods affecting human being.
P15	**Pathology**	**Malignant tumors**	**2 c.27** Describe the gross features of malignant and locally malignant tumors with examples **2 c.28** Use the light microscope to examine and identify microscopic findings of some selected examples of malignant and locally malignant tumors. **2 c.29** Write a pathological request concerning main features of gross appearance of malignant tumors **2 c.30** Write a pathological report
P 16	**Microbiology**	**Biochemical rection & bacterial identification**	**2 c.25** Identify Biochemical reactions **2 c..24** Identify different methods used in diagnosis of bacterial infections
P17	**Pathology**	**Revision**	
P18	**Pathology**	**Revision**	

3 tutorial

	DEPARTMENT	TUTORIALS TITLE	OBJECTIVES
T1	**Microbiology**	bacterial physiology	**2 a.24** identify and point out the bacterial physiology, requirements and products
T2	**Parasitology**	**Heterophyes heterophyes _H.nana_loa loa_Entrobious vermicularis**	2a.43 identify general characteristic morphology of class Cestoda and general life cycle of class Cestoda. 2 a 44 Classify Cestoda with.ex. *Hymenolepis* according to habitat, life cycle gross morphology and biology 2a.46 identify general characteristic morphology of class Nematoda and general life cycle of class Nematoda. 2 a 47Classify Nematoda with.ex. *Entrobius vermicularis* and Loa Loa life

			cycle gross morphology and biology according to habitat, life cycle gross morphology and biology.
T3	**Microbiology**	host parasite relationship	**2a.46** Discuss the host parasite relationship and microbial pathogenesis, Sources and reservoirs of infection**,** methods of transmission & spread of infectious diseases and bacterial virulence factors.
T4	**Pathology**	**Different types of granuloma**	**2 a.113** Classify granuloma **2 a.114** Describe the aetiology of different types(eg, sarcoidosis, actinomycosis, syphilis, leprosy, forign body) **2 a.115** Describe the pathological picture of different types
T5	**Parasitology**	Entamoeba histolotica, leshmaniasis	2a.69 identify general characteristic morphology of class protozoa and general life cycle of class protozoa 2 a.70 Describe Leishmaniasis life cycle morphology and biology
T6	**Microbiology**	**nosocomial infection**	**2 a.150** Define nosocomial infections, their underlying factors, their sources and mode of transmission and basics of infection control measures
T7	**Parasitology**	arthropods I	2 a. 129 recognize general characteristic, classification and morphology of Arthropoda. 2 a.130 recognize general life cycle of arthropods. 2 a.131identify medical

			importance of Diptera and Siphonaptera
T8	**Pathology**	**Repair**	**2a 98**Describe the differences between the various cell types (ie, labile, stable, and permanent cells) in terms of their regeneration potential. **2 a 99** List examples of each cell type. **2a 100**Recognize and predict the way by which the injured tissue will regenerate or heal. **2a 101** .Recognize examples of healing (eg,wound healing, nerve healing) , **2 a 102 enumerate** steps of this repair **2 a 103 list** complications which may occur during this repair. **2 a.104** Define stem cell and its role in repair.
T9	**Parasitology**	**arthropods II**	2 a.132 recognize General characteristic morphology of Anoplura, Hemiptera and Aracrina. 2 a.133 recognize general life cycle of Anoplura, Hemiptera and Aracrina 2 a.134 identify medical importance of Anoplura, Hemiptera and Aracrina
T10	**Microbiology**	**Needle prickle**	**2 a.126** Outline protective measures that guard against Needle prick injury **2 a.127** List biological hazards that can be transmitted by needle prick **2 a.128** Discuss how to deal with such a case

T11	**Pathology**	**General aspect of neoplasia**	**2 a.142** Explain the different points related to neoplasia regarding its definition, aetiology, its classifications to benign and malignant epithelial tumours, benign and malignant connective tissue tumours, . **2 a.143**Contrast benign from malignant tumours. **2 a.144** Understand clinical effects of neoplasms **2 a.145** know the diagnostic modalities for neoplasm **2 a.146**List the etiologic factors in carcinogenesis. **2 a.147** Define Oncogenes with examples **2 a.148** Define tumour suppressor genes with examples **2 a.149** Explain molecular basis of carcinogenesis
T12	**Microbiology**	**pathogens and lab diagnosis**	**2 a. 116** Understand how a virus produces a disease **2 a.117** Recognize effect of virus infection at cellular and host level **2 a.118** Enumerate modes of transmission of viral infection **2 a.119** Describe virus host relationship. **2 a.120** Outline different methods for diagnosis of viral diseases **2 a.121** Express a Basic understanding about the technique of these methods.
T13	**Pathology**	general aspect of neoplasia II	**2 a. 151** Identify various types of malignant tumours **2 a.152** Define grading and staging of cancer,

			2 a.153 Enumerate methods of spread of tumours (local, blood, lymphatic, transcoelomic and implantation), **2 a.154** Recognize the prognosis of tumours and its effects on the host. **2 a. 155** Describe methods and mechanisms of metastasis. **2 a.157Define teratoma** **2 a.158 Identify its sites and types** **2 a.159Identify embryonic tumuors** **2 a.160 define hamartoma**
T14	**Parasitology**	**diagnostic technique**	2 a. 140 recognize value of diagnosis of parasitic infection 2 a.141 identify principles of parasitological diagnostic techniques

4-CASE BASED LEARNING

	DEPARTMENT	CP	OBJECTIVES
CP1	**PATHOLOGY**	**LOCALLY MALIGNANT TUMORS**	**2 b.1** Solve a case of locally malignant tumors **2 b.2** identify various types of it **2 b.3** recognize the criteria of it **2 b.4 identify morphology and DD of basal cell carcinoma**

5-SELF DIRECTED LEARNING

	DEPARTMENT	SDL	OBJECTIVES

SDL1	**PATHOLOGY**	Bacterial infection	**2 a.161**Compare between the result of invasion of the blood by bacteria. **2 a.162** Describe the effects of bacteraemia, **2 a.163** Describe the effects of septicaemia, **2 a.164** Describe the effects of pyaemia, **2 a.165** Describe the effects of toxaemia
SDL2	**PATHOLOGY**	gangrene	**2 a.107** Identify gangrene and its aetiology **2 a. 108** Differentiate between types of gangrene
SDL3	**PATHOLOGY**	Paraneoplastic syndrome	**a 174**define paraneoplastic syndrome **2 a.175** Enemurate causes of it **2 a.176 Explain the** pathological effect on different organs)