JANTA COLLEGE OF PHARMACY,BUTANA(SC

LESSON PLAN

Name of the Faculty : Mrs.Poonam Rani
Discipline : DMLT
Semester : Fourth
Subject : Cl. Biochemistry (121943)
Lesson Plan Duration : 16 weeks(from 6 March,2023 to 23 June,2023)(According to Syllabus Scheme)
Work load(Lecture/Practical)per week(in hours) : Lectures-03(hr),Practicals-03(hr)

Week	Theory		
	Lecture Day	Topic(including assigment/test)	Practical Day
		Urine Analysis	
1st	1st	Normal composition of urine	1st
	2nd	Clinical importance of urine analysis	
	3rd	Qualitiative analysis of proteins	
2nd	1st	Qualitiative analysis of Sugar	2nd
	2nd	Qualitiative analysis of bile salts, bile pigments	
	3rd	Qualitiative analysis of urobilinogen and blood	
3rd	1st	Detailed discussion on glycosuria and albuminuria	3rd
	2nd	Detailed discussion on glycosuria and albuminuria	
	3rd	Ketone bodies	
4th	1st	Urinary electrolytes estimation (Na^+, K^+ and Cl^-)	4th
	2nd	Urinary electrolytes estimation (Na^+, K^+ and Cl^-)	
		Stool Chemistry	
	3rd	Physical characteristics and chemical composition of stool	
5th	1st	Physical characteristics and chemical composition of stool	5th
	2nd	Physical characteristics and chemical composition of stool	
	3rd	Physical characteristics and chemical composition of stool	
6th	1st	Significance of presence of blood and excess fat in stool	6th
	2nd	Significance of presence of blood and excess fat in stool	
	3rd	Occult blood detection	
7th	1st	Occult blood detection	7th
		Cerebrospinal Fluid	
	2nd	Composition of CSF and its functions	
	3rd	Methods of determination of proteins, sugar and chloride in CSF	
8th	1st	Methods of determination of proteins, sugar and chloride in CSF	8th
	2nd	Methods of determination of proteins, sugar and chloride in CSF	
	3rd	Reference Values and Clinical importance	
		Biological fluids	
9th	1st	Formation, composition and significance of Peritoneal fluid	9th
	2nd	Formation, composition and significance of Pleural fluid	
	3rd	Formation, composition and significance of Synovial fluid	

10th	1st	Formation, composition and significance of Ascitic fluid	10th
	2nd	All topics Repeat	
		Electrophoresis	
	3rd	Theory	
11th	1st	Principle and procedure of paper electrophoresis	11th
	2nd	Principle and procedure of Gel electrophoresis	
	3rd	Method of elution, Clinical importance	
		Chromatography	
12th	1st	Theory of Chromatography	12th
	2nd	Separtion between stationary and mobile phases	
	3rd	Principle and procedure of paper chromatography	
13th	1st	Importance of Chromatography	13th
		Automation in Biochemistry	
	2nd	Classification and types of Auto analyzers	
	3rd	Classification and types of Auto analyzers	
14th	1st	Classification and types of Auto analyzers	14th
	2nd	Classification and types of Auto analyzers	
	3rd	Classification and types of Auto analyzers	
		Thyroid function tests	
15th	1st	Clinical importance of T_3,T_4 and TSH	15th
	2nd	Clinical importance of T_3,T_4 and TSH	
	3rd	Clinical importance of T_3,T_4 and TSH	
16th	1st	Clinical importance of T_3,T_4 and TSH	16th
		Introduction of Tumor markers	
	2nd	Commonly used Tumor Markers (Cancer Markers)	
	3rd	Commonly used Tumor Markers (Cancer Markers)	

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Practical

Topic
Analysis of urine for sugar by qualitative method
Analysis of urine for sugar by quantitative method
Analysis of urine proteins by qualitative method
Analysis of urine proteins by quantitative method
Estimation of ketone bodies in given urine sample
Estimation of urobilinogen in given urine sample
Detection of bile salt in given urine sample
Detection of bile pigments in given urine sample
Detection of occult blood in given stool sample

Estimation of proteins in CSF
Estimation of sugar in CSF
Estimation of chloride in CSF
Demonstration of paper electrophoresis
Demonstration of paper chromatography

JANTA COLLEGE OF PHARMACY,BUTANA(SONEPAT)

LESSON PLAN

Name of the Faculty : Mrs.Namarta Devi

Discipline : DMLT

Semester : 4th Sem (2nd year)

Subject : Employability Skills – II

Lesson Plan Duration : 16 weeks(from 6 March,2023 to 23 June,2023)(According to Syllabus Scheme)

Work load(Lecture/Practical)per week(in hours) : Practicals-02(hr)

Week	Theory		Practical	
	Lecture Day	Topic(including assigment/test)	Practical Day	Topic
1st	1st		1st	Mock interview
	2nd			
	3rd			
2nd	1st		2nd	Mock interview
	2nd			
	3rd			
3rd	1st		3rd	Mock interview
	2nd			
	3rd			
4th	1st		4th	Preparing for meeting
	2nd			
	3rd			
5th	1st		5th	Preparing for meeting
	2nd			
	3rd			
6th	1st		6th	Preparing for meeting
	2nd			
	3rd			
7th	1st		7th	Group discussion
	2nd			
	3rd			
8th	1st		8th	Group discussion
	2nd			
	3rd			

9th	1st		9th	Seminar presentation
	2nd			
	3rd			
10th	1st		10th	Seminar presentation
	2nd			
	3rd			
11th	1st		11th	Making a presentation(Elements of good presentation)
	2nd			
	3rd			
12th	1st		12th	Making a presentation(Elements of good presentation)
	2nd			
	3rd			
13th	1st		13th	Structure and tools of presentation
	2nd			
	3rd			
14th	1st		14th	Structure and tools of presentation
	2nd			
	3rd			
15th	1st		15th	Paper reading
	2nd			
	3rd			
16th	1st		16th	Power point presentation
	2nd			
	3rd			

JANTA COLLEGE OF PHARMACY,BUTANA(SONEPAT)

LESSON PLAN

Name of the Faculty : Mrs.Poonam Rani

Discipline : DMLT

Semester : Fourth

Subject : Cl. Haematology - IV(121942)

Lesson Plan Duration : 16 weeks(from 6 March,2023 to 23 June,2023)(According to Syllabus Scheme)

Work load(Lecture/Practical)per week(in hours) : Lectures-03(hr),Practicals-03(hr)

Week	Theory		Practical	
	Lecture Day	Topic(including assigment/test)	Practical Day	Topic
		Introduction of normal haemostasis		
1st	1st	Theories of blood coagulation	1st	Determination of bleeding time by dukes method
	2nd	Theories of blood coagulation		
	3rd	Theories of blood coagulation		
2nd	1st	Theories of blood coagulation	2nd	Determination of bleeding time by Ivy's method
	2nd	Platelets and their role in haemostasis including count		
	3rd	Platelets and their role in haemostasis including count		
3rd	1st	Platelets and their role in haemostasis including count		
	2nd	Platelets and their role in haemostasis including count		
	3rd	Bleeding disorders and related diseases	3rd	Determination of Clotting time by LEE and white method
4th	1st	Bleeding disorders and related diseases		
	2nd	Bleeding disorders and related diseases		
	3rd	Bleeding disorders and related diseases		
5th	1st	Principle, procedure clinical importance,reference value of prothrombin time	4th	Determination of clot retraction test
	2nd	Principle, procedure clinical importance,reference value of APTT		
	3rd	Principle, procedure clinical importance,reference value of PTI		
6th	1st	Principle, procedure clinical importance,reference value of Thrombin time		
	2nd	Principle, procedure clinical importance,reference value of Bleeding time	5th	Determination of prothrombin time of quicks method
	3rd	Principle, procedure clinical importance,reference value of Bleeding time		
7th	1st	Principle, procedure clinical importance,reference value of Clotting time		
	2nd	Principle, procedure clinical importance,reference value of Clotting time		
	3rd	Principle, procedure clinical importance,reference value of CRT	6th	Determination of activated partial thromboplastin time (APTT)
8th	1st	Principle, procedure clinical importance,reference value of Hess test		
		Bone - Marrow		
	2nd	Composition and function of bone- marrow		
	3rd	Aspiration of bone- marrow by various methods		
9th	1st	preparation, staining and examination of bone-marrow smears for myclogram including M.E. Ratio	7th	Determination of Hess test
	2nd	Iron staining (Perls' reaction)		
	3rd	Significance of bone- marrow examination		

10th		**Leukemia**		
	1st	Definition of leukemias		
	2nd	Definition of leukemias	8th	Determination of LE cell
	3rd	Definition of leukemias		
11th	1st	(FAB) Classification		
	2nd	(FAB) Classification		
	3rd	(FAB) Classification	9th	Cell counts of various biological fluids
12th	1st	(FAB) Classification		
	2nd	(FAB) Classification		
	3rd	Laboratory diagnosis of various leukemias		
13th	1st	Laboratory diagnosis of various leukemias		
		LE Cell phenomenon		
	2nd	Phenomenon of LE cell, its differentiation from tart cell	10th	Routine examination of semen
	3rd	Demonstration of LE cell by various methods		
14th	1st	Clinical significance		
		Semen Analysis in detail		
	2nd	Semen Analysis in detail		
	3rd	Semen Analysis in detail		
15th	1st	Semen Analysis in detail		
	2nd	Semen Analysis in detail		
		Cell counts of various biological fluids		
	3rd	Cell counts of various biological fluids		
16th	1st	Cell counts of various biological fluids		
	2nd	Cell counts of various biological fluids		
	3rd	Cell counts of various biological fluids		

JANTA COLLEGE OF PHARMACY,BUTANA(SONEPAT)

LESSON PLAN

Name of the Faculty : Mrs.Parmila Devi

Discipline : DMLT

Semester : Fourth

Subject : CLINICAL MICROBIOLOGY- IV(121941)

Lesson Plan Duration : 16 weeks(from 6 March,2023 to 23 June,2023)(According to Syllabus Scheme)

Work load(Lecture/Practical)per week(in hours) : Theory - 03(hr),Practicals-03(hr)

Week	Theory		Practical	
	Lecture Day	Topic(including assigment/test)	Practical Day	Topic
1st		**Mycology**	1st	To prepare the sabouraude dextrose agar with and without antibiotics for the use microbiology lab
	1st	Characteristics and classification of medically important fungi		
	2nd	Characteristics and classification of medically important fungi		
	3rd	Characteristics and classification of medically important fungi		
2nd	1st	Characteristics and classification of medically important fungi	2nd	To prepare the corn meal agar the use of microbiology lab
		Fungal Culture media		
	2nd	SDA with and without antibiotics		
	3rd	CMA (Corn Meal agar) and BHI (Brain Heart Infusion)		
3rd		**Collecution and processing of sample for fungal infection in Skin, Nail and Hair**	3rd	To prepare KOH stain for fungi
	1st	KOH Preparation		
	2nd	LCB (Lactophenol cotton blue) India Ink		
		Fungal Cultivation		
	3rd	Medicaly important fungi - Candida , Dermatophytes		
4th	1st	Medicaly important fungi - Candida , Dermatophytes	4th	To perform wet mount technique KOH and LCB.
	2nd	Medicaly important fungi - Candida , Dermatophytes		
	3rd	Laboratory Contaminants - Penicillium, Rhizopus, Mucor, Aspergillus		
5th	1st	Laboratory Contaminants - Penicillium, Rhizopus, Mucor, Aspergillus	5th	Collection and processing of sample for diagnosis of fungal infection in skin, hair, nail scraping
	2nd	Laboratory Contaminants - Penicillium, Rhizopus, Mucor, Aspergillus		
		Introduction to Immunology		
	3rd	Immunity (Innate)		
6th	1st	Immunity (Innate)	6th	To perform widal test to given serum for by qualitative method
	2nd	Immunity (Innate)		
	3rd	Immunity (Acquired)		
	4th	Immunity (Acquired)		
7th	1st	Immunity (Acquired)	7th	Determine the anti sterpto lysin antibody in biven serum samble
	2nd	Immunity (Acquired)		
		Antigens		

	3rd	Definition, types and properties		
8th	1st	Definition, types and properties	8th	To perform CRP in given serum sample
	2nd	Definition, types and properties		
	3rd	Definition, types and properties		
9th		**Antibodies**		
	1st	Definition, types and properties		
	2nd	Definition, types and properties	9th	To perform rheumatoid factor in given serum sample
	3rd	Definition, types and properties		
10th	1st	Definition, types and properties		
		Antigen - Antibody Reactions		
	2nd	Principle and applications of agglutination		
	3rd	Principle and applications of agglutination	10th	To perform VDRL in given serum sample
11th	1st	Principle and applications of agglutination		
	2nd	Precipitation and flocceulation reactions		
	3rd	Precipitation and flocceulation reactions		
12th	1st	Precipitation and flocceulation reactions	11th	To perform HIV in given blood sample
		Serological tests		
	2nd	Principle, techniques and interpertaion of widal - tube method/ slide method		
	3rd	Principle, techniques and interpertaion of widal - tube method/ slide method		
13th	1st	Principle, techniques and interpertaion of widal - tube method/ slide method	12th	To detection of hbsag in human serum
	2nd	Anti streptolysin O		
	3rd	Anti streptolysin O		
14th	1st	C- reactive protein		
	2nd	C- reactive protein		
	3rd	VDRL/ RPR		
15th	1st	VDRL/ RPR		
	2nd	Rheumatoid factor (Rf)		
	3rd	Principle , techniques and application of ELISA (dirct and indirct)		
16th	1st	Principle , techniques and application of ELISA (dirct and indirct)		
	2nd	Principle , techniques and application of ELISA (dirct and indirct)		
	3rd	Principle , techniques and application of ELISA (dirct and indirct)		

JANTA COLLEGE OF PHARMACY,BUTANA(SONEPAT)

LESSON PLAN

Name of the Faculty : Mrs. Parmila Devi

Discipline : DMLT

Semester : Fourth

Subject : Medical Laboratory Management (121946)

Lesson Plan Duration : 16 weeks(from 6 March,2023 to 23 June,2023)(According to Syllabus Scheme)

Work load(Lecture/Practical)per week(in hours) : Lectures-04(hr)

Week	Theory		Practical	
	Lecture Day	Topic(including assigment/test)	Practical Day	Topic
1st		**Introduction, Layout, Facility of clinical Laboratotry**	1st	
	1st	Role of medical laboratory technology in total health care		
	2nd	Principles of management, techniques of planning		
	3rd	Principles of management, techniques of planning		
	4th	Principles of management, techniques of planning		
2nd	1st	Physical facilites/equipments - layout and design	2nd	
	2nd	Physical facilites/equipments - layout and design		
	3rd	Physical facilites/equipments - layout and design		
	4th	Physical facilites/equipments - layout and design		
3rd		**Laboratory Organization and Layout**		
	1st	Laboratroy organization, operation, job descripation, evaluation, performance		
	2nd	Laboratroy organization, operation, job descripation, evaluation, performance	3rd	
	3rd	Laboratroy organization, operation, job descripation, evaluation, performance		
	4th	Laboratroy organization, operation, job descripation, evaluation, performance		
4th	1st	Layout of clinical laboratories	4th	
	2nd	Layout of clinical laboratories		
	3rd	Lay out of Blood Bank		
	4th	Lay out of Blood Bank		
5th		**Material Required**		
	1st	Material management, procurement, financial resources		
	2nd	Material management, procurement, financial resources	5th	
	3rd	Material management, procurement, financial resources		
	4th	Importing, inventory, control and analysis, inspection, storage etc		
6th	1st	Importing, inventory, control and analysis, inspection, storage etc	6th	
	2nd	Importing, inventory, control and analysis, inspection, storage etc		
		Quality Assurance		
	3rd	Analytical control, Internal and external quality assurance in clinical laboratories		
	4th	Analytical control, Internal and external quality assurance in clinical laboratories		
7th	1st	Analytical control, Internal and external quality assurance in clinical laboratories	7th	
	2nd	Analytical control, Internal and external quality assurance in clinical laboratories		
	3rd	Precision, accuracy		
	4th	Precision, accuracy		
8th	1st	Standard deviation as per national standards	8th	
	2nd	Standard deviation as per national standards		
	3rd	Standard deviation as per national standards		
	4th	All units repeat		

		Safety Precautions		
9th	1st	Safety measures in clinical laboratories (microbiology, haematoology, biochemistry, etc	9th	
	2nd	Safety measures in clinical laboratories (microbiology, haematoology, biochemistry, etc		
	3rd	Safety measures in clinical laboratories (microbiology, haematoology, biochemistry, etc		
	4th	Safety measures in clinical laboratories (microbiology, haematoology, biochemistry, etc		
10th	1st	Disposal of Biomedical waste.	10th	
		First Aid in Clinical Laboratory		
	2nd	Acid burn / Alkali burn		
	3rd	Acid burn / Alkali burn		
	4th	Accidental trauma		
11th	1st	Accidental trauma	11th	
	2nd	Gas/Toxic inhalation		
	3rd	Gas/Toxic inhalation		
	4th	Spillage		
12th	1st	Spillage	12th	
	2nd	All units repeat		
		Medical Ethics and Code of Conduct		
	3rd	Ethics and code of conduct- legal aspects - confidentiality malpractice/ negligence; legal implications		
	4th	Ethics and code of conduct- legal aspects - confidentiality malpractice/ negligence; legal implications		
13th	1st	Ethics and code of conduct- legal aspects - confidentiality malpractice/ negligence; legal implications	13th	
	2nd	Ethics and code of conduct- legal aspects - confidentiality malpractice/ negligence; legal implications		
	3rd	Law suits, consumer protection and insurance for professional health hazards		
	4th	Law suits, consumer protection and insurance for professional health hazards		
14th	1st	Law suits, consumer protection and insurance for professional health hazards	14th	
	2nd	Law suits, consumer protection and insurance for professional health hazards		
		Laboratory Equoipment - Care and Maintenance		
	3rd	Preventive maintenance and care of various laboratory equipment		
	4th	Preventive maintenance and care of various laboratory equipment		
15th	1st	Preventive maintenance and care of various laboratory equipment		
	2nd	Preventive maintenance and care of various laboratory equipment		
	3rd	Preventive maintenance and care of various laboratory equipment		
		Role of Computer in Lab services		
	4th	Storage and retrieval of laboratory data manually and with help of compputers		
16th	1st	Storage and retrieval of laboratory data manually and with help of compputers		
	2nd	Storage and retrieval of laboratory data manually and with help of compputers		
		Laboratory Accreditation - Introduction		
	3rd	Laboratory Accreditation - Introduction		
	4th	Laboratory Accreditation - Introduction		

JANTA COLLEGE OF PHARMACY,BUTANA(SONEPAT)

LESSON PLAN

Name of the Faculty : Mr.Amit Kumar

Discipline : DMLT

Semester : Fourth

Subject : HISTOPATHOLOGY AND CYTOLOGY - II(121944)

Lesson Plan Duration : 16 weeks(from 6 March,2023 to 23 June,2023)(According to Syllabus Scheme)

Work load(Lecture/Practical)per week(in hours) : Lectures-04(hr),Practicals-03(hr)

Week	Theory		Practical	
	Lecture Day	Topic(including assigment/test)	Practical Day	Topic
1st	1st	Principles of light microscope **(1st Unit)**	1st	Demonstration of various parts of light microscope.
	2nd	Various parts of microscope		
	3rd	Uses of microscope,Cleaning and maintenance		
	4th	Polarizing microscopy		
2nd	1st	Polarizing microscopy	2nd	Demonstration of various parts of light microscope (Repeat).
	2nd	Dark field microscopy		
	3rd	Phase contrast microscopy		
	4th	Fluorescent microscopy		
3rd	1st	Fluorescent microscopy	3rd	Demonstration of cryostat.
	2nd	Electron microscopy		
	3rd	Electron microscopy		
	4th	PAS (Periodic Acid Schiff's Reagent) **(2nd Unit)**		
4th	1st	PAS (Periodic Acid Schiff's Reagent)	4th	Processing of tissue for frozen section.
	2nd	Silver impergnation stain – Reticulin fibre		
	3rd	Silver impergnation stain – Reticulin fibre		
	4th	Ziehl Neelson's – for AFB and Leprae		
5th	1st	Ziehl Neelson's – for AFB and Leprae	5th	Staining and mounting of frozen section using H&E stain.
	2nd	Masson's trichrome stain		
	3rd	Masson's trichrome stain		
	4th	Oil Red O – fat		
6th	1st	Oil Red O – fat	6th	Staining and mounting of frozen section using Oil Red "O".
	2nd	Gram's stain – Gram +ve and Gram –ve		
	3rd	Gram's stain – Gram +ve and Gram –ve		
	4th	Process of decalcification **(3rd Unit)**		
7th	1st	Various types of decalcifying methods	7th	Preparation of various mounting reagents for museum specimens.
	2nd	Various types of decalcifying methods		
	3rd	Their mechanism, advantage, disadvantage		
	4th	applications		
	1st	Assessment of decalcification		

8th	2nd	Reception and processing of frozen tissue **(4th Unit)**	8th	Preparation of various mounting reagents for museum specimens.rpt
	3rd	Freezing microtome and cryostat		
	4th	Advant. & dis-advan. of freezing microtome and cryostat		
9th	1st	Working, care, maint. of freezing microtome and cryostat	9th	Demonstration and care of autopsy instruments.
	2nd	Frozen section cutting		
	3rd	Staining:-Rapid H&E		
	4th	Fat stain & Mounting of frozen section		
10th	1st	Museum Techniques **(5th Unit)**	10th	Demonstration and care of autopsy instruments.(Repeat)
	2nd	Introduction to museum		
	3rd	emphasis on importance of museum		
	4th	emphasis on importance of museum		
11th	1st	Reception	11th	Demonstration of malignant cell.
	2nd	fixation		
	3rd	fixation		
	4th	processing of various museum specimens		
12th	1st	Cataloguing of museum specimen	12th	Preparation of dry smear and wet smear.
	2nd	Cataloguing of museum specimen		
	3rd	Introduction to autopsy technique **(6th Unit)**		
	4th	autopsy area,instruments,Use of autopsy		
13th	1st	Malignant Cells(Characteristics) **(7th Unit)**	13th	To perform Pap stain.
	2nd	Differences from normal cell		
	3rd	Importance of HCG **(8th Unit)**		
	4th	Use of Harmonal Assessment (Pregnancy Test)		
14th	1st	Principle of FNAC **(9th Unit)**	14th	To perform Pap stain.(Repeat)
	2nd	Indications of FNAC		
	3rd	Uses of FNAC		
	4th	Staining Techniques:-PAP Stain		
15th	1st	MGG (May-Grunwald – Giemsa)	15th	Fixation of smears and staining with MGG.
	2nd	H&E (Haematoxylin & Eosin Stain)		
	3rd	Cytological special stains(PAS Stain) **(10th Unit)**		
	4th	PAS (Periodic Acid Schiffs reagent Stain)		
16th	1st	Zeihl Neelson's(ZN) Stain (AFB)	16th	Fixation of smears and staining with MGG.(Repeat)
	2nd	Zeihl Neelson's(ZN) Stain (AFB)		
	3rd	Advancements in Cytology **(11th Unit)**		
	4th	Use of Cytospin		