CLINICAL BIOCHEMISTRY- IV
L T P
3 - 3
RATIONALE

DETAILED CONTENTS
1st week
Urine Analysis (11hrs)
1.1 Normal composition of urine
1.2 Clinical importance of urine analysis
1.3 Qualitative analysis of proteins, sugar, bile salts, bile pigments,
2nd week
urobilinogen and blood.
1.4 Detailed discussion on glycosuria and albuminuria
1.5 Ketone bodies
3rd week
1.6 Urinary electrolytes estimation (Na, K ad Cl)
4th week revesion
5th week
2. Stool Chemistry (08 hrs)
2.1 Physical characteristics and chemical composition of stool
2.2 Significance of presence of blood and excess fat in stool
6th week
2.3 Occult blood detection
7th week
3. Cereberospinal Fluid (05 hrs)
3.1 Composition of CSF and its functions
3.2 Methods of determination of proteins, sugar and chloride in CSF
3.3 Reference Values
3.4 Clinical importance
8th week
4. Biological fluids (05 hrs)
Formation, composition and significance of biological fluids (peritoneal, pleural, synovial, ascitic fluid
9th week revesion
10th week
Electrophoresis (04 hrs)
5.1 Theory
5.2 Principle and procedure of paper, gel electrophoresis, method of elution
5.3 Clinical importance
11 th week
6. Chromatography (04 hrs)
6.1 Theory of Chromatography, separation between stationary and mobile phases

6.2 Principle and procedure of Paper chromatography
6.3 Importance of chromatography
12th week revesion
13th week
7. Automation in Biochemistry (05 hrs)
Classification and types of Auto analyzers
14th week
8. Thyroid function tests (04 hrs)
Clinical importance of T3, T4 and TSH
15th week
9 Introduction to Tumor markers (02hrs)
Commonly used Tumor Markers (Cancer Markers)

LIST OF PRACTICALS

1. Analysis of urine for sugar and proteins (qualitative and quantitative)
2. Detection of ketone bodies in urine
3. Detection of haematuria
4. Detection of bile pigments, bile salts and urobilinogen
5. Occult blood test for stool specimen
6. Estimation of glucose in CSF
7. Estimation of total proteins and globulins in CSF
8. Estimation of chloride in CSF
9. Titration for acidity determination and qualitative analysis of gastric juice
10. Demonstration of electrophoresis (Paper electrophoresis)
11. Demonstration of chromatography (Paper chromatography)

BPS Mahila Polytechnic, Khanpur Kalan

Name of Faculty : Ms. Nitesh

Discipline : D.M.L.T (4th Sem)

Subject : IMMUNOLOGY AND MYCOLOGY

Lesson Plan Duration: 15 weeks

Work Load, L -03, P-2

Theory			Practical	
week	**Lecture day**	**Topic (including assignment/test)**	**week**	**Topic**
1st	1	Mycology-,Introduction, Characteristics OF FUNGI	1st	Preparation of different culture media used in mycology - Sabouraud's dextrose agar
	2	classification of medically important fungi		
	3	Fungal Culture media-1-SDA(with and without antibiotics)		
2nd	4	CMA (Corn meal agar)	2nd	Preparation of different culture media used in mycology - Corn meal agar
	5	BHI (Brain Heart Infusion)		
	6	Collection and processing of sample for fungal infection in Skin, Nail and Hair by KOH Prepration		
3rd	7	Collection and processing of sample for fungal infection in Skin, Nail and Hair by LCB (Lactophenol cotton blue) Prepration and india	3rd	Preparation of different culture media used in mycology -rBHI (Brain, Heart Infusion)
	8	Fungal Cultivation- Candida		
	9	Dermatophytes		

4th	10	Laboratory Contaminants- Penicillium	4th	To perform wet mount techniques – KOH
	11	Rhizopus		
	12	Mucor		
5th	13	Aspergillus	5th	To perform wet mount techniques – LCB
	14	Introduction to Immunology		
	15	Immunity:Define innate immunity,and its type		
6th	16	Define Acquired immunity,and its type	6th	To study characteristics of common laboratory fungal contaminants
	17	Acquired		
	18	Antigens- Definition		
7th	19	Antigens- types	7th	Collection and processing of samples for diagnosis of fungal infections in skin, hair, nail scrapings
	20	Antigens- properties		
	21	Revision		
8th	22	Antibodies- Definition	8th	To perform serological tests Widal test Slide test
	23	Antibodies- types		
	24	Antibodies- properties		
9th	25	Antigen – Antibody Reactions,charateristics	9th	To perform serological tests Widal test tube teste
	26	Principle and applications of agglutination reaction		
	27	Principle and applications of precipitation reaction		

10th	28	Principle and applications of flocculation reaction	10th	To perform serological tests ASO titre
	29	Revision		
	30	Principle, techniques and interpretation ofWidal - Tube method/ Titre slide method		
11th	31	Principle, techniques and interpretation ofWidal - Tube method/ Titre slide method	11th	To perform serological tests CRP
	32	Principle, techniques and interpretation of Widal - Tube method/ Titre slide method		
	33	Principle, techniques and interpretation of Anti streptolysin O		
12th	34	Principle, techniques and interpretation of Anti streptolysin O	12th	To perform serological tests Rheumatoid factor
	35	Principle, techniques and interpretation of C-reactive protein		
	36	Principle, techniques and interpretation of C-reactive protein		
13th	37	Principle, techniques and interpretation of VDRL	13th	To perform serological tests VDRL Test
	38	Principle, techniques and interpretation of VDRL		
	39	Principle, techniques and interpretation of RPR		
	40	Principle, techniques and interpretation of RPR		

14th	41	Principle, techniques and interpretation of Rheumatoid factor (RF)	14th	To perform serological tests HIV Screening
	42	Principle, techniques and interpretation of Rheumatoid factor (RF)		
15th	43	Principle, techniques and application of ELISA direct,indirect	15th	To perform serological tests HBsAg Screening
	44	Revision		
	45	Revision		

4.5 MEDICAL LABORATORY MANAGEMENT
L T P
4 - - RATIONALE

DETAILED CONTENTS
1st week
1. Introduction, Layout, Facility of clinical Laboratory (08 hrs)
Role of medical laboratory technology in total health care, principles of management, techniques of planning, physical facilities/equipments – layout and design
2nd week
2. Laboratory Organization and Layout (08 hrs)
2.1. Laboratory organization, operation, job description, evaluation, performance
2.2. Layout of clinical laboratories
2.3. Lay out of Blood Bank
3rd week
3. Material Required (06 hrs)
Material management, procurement, financial resources, importing, inventory, control and analysis, inspection, storage etc
4th week revesion
5th week
4. Quality Assurance (10 hrs)
Analytical control, Internal and external quality assurance in clinical laboratories, precision, accuracy, standard deviation as per national standards
6th week
5. Safety Precautions (05 hrs)
Safety measures in clinical laboratories (microbiology, haematology, biochemistry, histopathology and cytology, transfusion medicine), Disposal of Biomedical waste.
7th week
6. First Aid in Clinical Laboratory: (09 hrs)
a) Acid burn/Alkali burn
b) Accidental trauma
c) Gas/Toxic inhalation
d) Spillage
8th week revesion
9th week
Medical Ethics and Code of Conduct (08 hrs)
Ethics and code of conduct - legal aspects – confidentiality malpractice/ negligence; legal implications, law suits, consumer protection and insurance for professional health hazards
10th week
8 Laboratory Equipment - Care and Maintenance (05 hrs)
Preventive maintenance and care of various laboratory equipment

11th week
9 Role of Computer in Lab services (03 hrs)
Storage and retrieval of laboratory data manually and with help of computers
12th week
10 Laboratory Accreditation – Introduction
13th week revesion
14th week revesion
15th week revesion