SYLLABUS OF
SECOND PROFESSIONAL
M.B.B.S.

(A) GENERAL PATHOLOGY

(B) PHARMACOLOGY AND THERAPEUTICS

(C) FORENSIC MEDICINE AND TOXICOLOGY

(D) BEHAVIOURAL SCIENCES
(Syllabus published with the curriculum of first professional M.B.B.S. Part-I and II).
(A) GENERAL PATHOLOGY

CELL INJURY

1. Necrosis, Ischemia, Hypoxia, Infarction and Gangrene
   Oncosis and Autolysis.

2. Sequence of the ultrastructural and biochemical changes
   which occur in the cell in response to the following:
   ① Ischemia
   ② Immunological injury, e.g., Asthma / SLE / Anaphylactic
      reaction
   ③ Physical agents, e.g., Radiation
   ④ Genetic defects, e.g., Thalassemia / Hemophilia
   ⑤ Nutritional deficiency, e.g., Kwashiorkor
   ⑥ Infectious agents
   ⑦ Viruses, e.g., Hepatitis
   ⑧ Bacteria, e.g., Staphylococcus aureus
   ⑨ Fungi, e.g., Candida
   ⑩ Parasites, e.g., Malaria
   ⑪ Nutritional deficiency

3. Irreversible and reversible injury


5. Necrosis and its types

6. Exogenous and endogenous pigmentation.

7. Dystrophic and metastatic calcification along with clinical
   significance.

8. Metabolic disorders
   • Lipid disorders, Steatosis of liver, Hyperlipidemia
   • Protein disorders
   • Carbohydrate disorders
INFLAMMATION, MEDIATORS OF INFLAMMATION

1. Role of inflammation in the defense mechanisms of the body.
2. Vascular changes of acute inflammation and their relation to morphological and tissue effects.
4. Role of cellular components in inflammatory exudate.
5. Exudates and transudate.
6. Important chemical mediators of inflammation.
7. Pathway of Arachidonic Acid metabolism.
8. Role of products of Arachidonic acid metabolism in inflammation.
9. Mechanism for development of fever, with reference to exogenous and endogenous pyrogens.
10. Chronic inflammation including Granulomas.
11. Granuloma and its types along with causes.
12. Systemic effects of acute and chronic inflammation and their possible outcomes.
13. Significance of ESR.
14. Induced hypothermia in medicine.
15. Healing in specialized tissue.

WOUND HEALING

1. Repair and regeneration.
2. Wound healing by first and second intention.
3. Factors that influence the inflammatory reparative response.
4. Wound contraction and cicatrisation.
5. Formation of granulation tissue.
DISORDERS OF CIRCULATION

a. **Thrombo-embolic disorders and their modalities**
   1. Etiology and pathogenesis of thrombosis.
   2. Possible consequences of thrombosis
   3. Difference between thrombi and clots
   4. Classification of emboli according to their composition.
   5. Difference between arterial and venous emboli.

b. **Hemorrhage, Hyperemia and Congestion**
   1. Definitions of common types of Hemorrhage
   2. Types of hyperemia
   3. Difference between hyperemia and congestion

c. **Infarction**
   1. Types of infarction
   2. Difference between anemic and hemorrhagic infarct
   3. Morphological picture of infraction in different organ systems

d. **Disorders of the circulation and shock**
   1. Edema, ascites, hydrothorax and anasarca.
   2. Pathophysiology of edema with special emphasis on CHF.
   3. Pathogenesis of four major types of shock (Hypovolemic, cardiogenic, vasovagal & septic) and their causes.
MICROBIOLOGY

1. Defence mechanisms of the body.
2. Microbial mechanisms of invasion and virulence.
3. Difference between sterilization and disinfection.
4. Methods of disinfection and sterilization of the following:
   a. Facility where the doctor practices,
   b. Examination table,
   c. Any spillage e.g. sputum, vomitus, stool, urine, blood,
   d. Examination tools, e.g., thermometer, nasal and ear specula and spatula,
5. Principles of aseptic techniques such as Venepuncture, urinary catheterization, bandaging, suturing and lumber puncture.
6. Universal precautions for infection control.
7. General principles of the following serological tests:
   a. ELISA – Hepatitis (A,B,C,D,E,G) Rubella, CMV and HIV
   b. PCR
   c. Haemagglutination – TPHA
   d. Western Blot –HIV Malaria.
8. Interpretation of:
   a. Culture reports
   b. Serological reports and
   c. Microscopic reports of gram stain and ZN stain.
9. Principles of proper collection and submission of specimens for laboratory investigations
10. General characteristics and taxonomy of Bacteria, Rickettsia, Chlamydia, Viruses and Fungi.
12. Microorganisms responsible for infection of the following organ systems:
   ① Central Nervous System
   ② Respiratory System
   ③ Gastrointestinal System
   ④ Genital System
   ⑤ Urinary System
   ⑥ Infections of Bones and Joints
Zoonosis
Infection of the Skin
Hepatic Infections
13 Pathogenesis, Treatment, Epidemiology, Prevention and Control of the following organisms:

(i) **Bacteria**
- Staphylococcus aureus
- Streptococcus pneumoniae
- Beta hemolytic streptococcus group a & b
- Diphtheria sp.
- Bordetella sp.
- Bacillus anthracis
- Clostridium perfringens
- Clostridium botulinum,
- Clostridium difficile
- Clostridium tetani
- Actinomycies israelii
- Nocardia asteroides
- Neisseria meningitis
- Neisseria gonorrhoeae
- Gardenella vaginalis
- Haemophilus influenzae
- Mycobacterium tuberculosis
- Mycobacterium leprae
- E.coli
- Klebsiella
- Proteus
- Salmonella
- Shigella
- Yersinia pestis
- Pseudomonas
- Vibrio cholera
Vibrio parahemolyticus
Campylobacter jejuni
Helicobacter pylori
Legionella
Mycoplasma pneumoniae
Chlamydia
Treponema pallidium
Leptospira
Rickettsia sp.

(ii) Viruses
Mumps
Herpes
Measles
Influenza,
Para influenza
RSV
Hepatitis A, B, C, D, E
Rota
CMV
EBV
Rubella
Chicken Pox
HIV
Rabies

(iii) Fungus
Cryptococcus neoformans
Candida albicans
Tinea species

(iv) Protozoa
Plasmodium species
Giardia lamblia
Entamoeba histolytica
Cryptosporidium
Leishmania species
Trichomonas vaginalis
Toxoplasma gondii
Pneumocystis carinii

(v) **Helminths**
Ascaris lumbricoides
Ancylostoma duodenale
Trichuris trichuria
Enterobius vermicularis
Filaria species
Strongyloides stercoralis
Schistosoma species
Echinococcus species
Taenia solium
Taenia saginata
Hymenolepis nana
PRINCIPLES OF ANTI MICROBIAL ACTION.

1. Antibiotics, selective toxicity, bacteriostatic and bactericidal.
2. Host determinants in relation to selection of an antimicrobial drug for therapy.
3. Minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC)
4. Bacterial resistance and the mechanisms involved in acquiring bacterial resistance
6. Mode of action of various antimicrobial drug groups.
7. Superinfection and cross sensitivity.

LIST OF COMMON ORGANISMS CAUSING ORGAN SYSTEM EFFECTS

a. Common organisms causing CNS Infections
   (i) Bacteria
       Steptococcus pneumoniae
       Beta hemolyticus srteptococcus group b
       Neisseria meningitidis
       Haemophilis influenzae
       Mycobacterium tuberculosis.
       E.coli
       Listeria monocytogenes
   
   (ii) viruses
       Enterovirus
       Mumps
       Herpes
       Adenovirus
   
   (iii) fungus
Cryptococcus neoformis
(iv) **protozoa**
Malaria
Toxoplasma

B. **Common organisms causing respiratory tract infection**

(i) **bacteria:**
Steptococcus pneumoniae
Beta hemolyticus streptococcus group b
Diptheria sp.
Bordetella sp.
Hemophilus influenzae
Mycobacterium tuberculosis
Klebsiella
Legionella
Mycoplasma pneumoniae

(ii) **viruses**
Herpes
Adeno virus
Measles
Influenza
Para influenza
Rhinovirus
RSV

(iii) **protozoa**
Pneumocystic carinii
C. **Organisms causing gastrointestinal tract infection / infestation**

(i) **Bacteria**
- Clostridium difficile
- Mycobacterium tuberculosis
- Salmonella
- Shigella
- Vibrio cholera
- Vibrio parahemolyticus
- Campylobacter jejuni
- Helicobacter pylori

(ii) **Viruses**
- Hepatitis A
- Rota
- Astro

(iii) **Fungus**
- Cryptococcus neoformis

(vi) **Protozoa**
- Giardia
- Iamblia Entameba
- histolytica
- Cryptosporidium

D. **Common organisms causing hepatic infections**

(i) **Bacteria**
- Streptococcus species
- Coliforms
- Anaerobes

(ii) **Viruses**
- Herpes
- Hepatitis A, B, C, D, E
- CMV
EBV
(iii) **Protozoa**
Entameba histolytica
Tape worms
Echinococcus granulosus

E. **Common organisms causing skin infection**

(i) **bacteria** Staphylococcus
aureus Streptococcus
pyogenes Actinomyces
israelii Nocardia asteroides
Mycobacterium tuberculosis
Mycobacterium leprae
Corynebacterium diphtheriae

(ii) **viruses**
Herpes
Measles
Rubella,
Chicken pox
Moluscum contagiosum

(iii) **fungus**
Candida albicans
Tinea species

(iv) **arthropodes**
Sarcoptes scabiei
Pediculus species
Cinex lectularius

(v) **helminths**
Filaria species
Strongyloides stercoralis
Schistosoma sp.

(vi) protozoa:
Leishmania species.

f.  Common organisms causing bone and joint infection

Bacteria: Staph aureus, Streptococcus pyogenes, Haemophilus influenzae, Neisseria gonorrhoeae, Brucella melitensis, Salmonella typhi, Strep. pneumonae, Pseudomonas sp. and Mycobacterium tuberculosis.

g.  Common organisms causing genital infection

(i) Bacteria: Mycoplasma urealyticum
(ii) Viruses: Pox, Herpes, Hepatitis B, HIV
(iii) Fungus: Candida albicans
(iv) Arthropodes: Sarcoptes scabiei
(v) Protozoa: Tricomonas vaginalis

h.  Common organisms causing zoonosis

(i) Viruses: Rabies,
(ii) Protozoa: Toxoplasma gondii, Leishmania sp.
(iii) Helmenthics: Echinococcus sp.

GENETICS

1. Common sex linked, autosomal recessive and autosomal dominant disorders.
2. Common genetic mutations.
3. Diseases associated with consanguineous marriages.
GROWTH DISORDERS/ NEOPLASIA

2. Cell cycle and cell types (stable, labile, permanent)
3. Mechanisms controlling cell growth
4. Classification systems of tumors.
5. Characteristics of benign and malignant tumors
6. Difference between Carcinoma and Sarcoma.
7. Grading and staging system of tumors.
8. Biology of tumor growth
9. Process of carcinogenesis
10. Host defense against tumors.
11. Mechanism of local and distant spread.
12. Local and systemic effects of tumors.
13. Tumor markers used in the diagnosis and management of cancers.
15. Epidemiology of common cancers in Pakistan.
16. Radiation and its effects on tissues.
IMMUNOLOGY

1. Antigen, antibody, epitope, hapten and adhesion molecules.
2. Difference between innate and acquired immunity.
5. Mechanism of humoral and cell mediated immunity.
6. Hypersensitivity reactions, Type I, Type II, Type III and Type IV.
7. Autograft, homograft, allograft and xenograft.
8. Immunotolerance and immunoparalysis.
9. Mechanism involved in allograft rejection and steps that can be taken to combat rejection.
10. Classification of Immunodeficiency disorders
12. Tissue transplantation.
13. Pathology and pathogenesis of AIDS.
14. Lab diagnosis of immunological diseases.

RECOMMENDED BOOKS

4. Clinical Pathology Interpretations by A. H. Nagi
B. PHARMACOLOGY AND THERAPEUTICS

The course outline is as follows:

1) General Pharmacology:

1. Definition of pharmacology, objectives of learning pharmacology, definition of drug and drug nomenclature.
2. Branches/divisions of pharmacology.
3. Sources of drugs.
4. Active principles of drugs and pharmacopoeias.
5. Dosage forms and doses of drugs.
6. Route of drug administration.
7. Absorption of drugs and processes involved in drug absorption.
8. Factors modifying absorption of drugs.
11. Drug reservoirs, distribution and redistribution of drugs, plasma protein binding.
13. Plasma half-life of drugs, steady state concentration, its clinical importance and factors affecting it.
14. Excretion of drugs.
15. Mechanism of drug action.
17. Factors modifying action and doses of drugs.
18. Pharmacokinetics, pharmacodynamics and receptors.
19. Pharmacogenetics.

2) Dermatological and topical drugs (Locally Acting Drugs)

Demulcents, emollients, irritants, counter irritants, astringents. Antiseborrhoeics, locally acting enzymes.
③ Antiseptics and disinfectants.
③ Ectoparasiticides.
3) Drugs Acting on Gastrointestinal Tract:
   - Emetics and anti emetics.
   - Drugs affecting motility of GIT.
   - Ulcer healing drugs.
   - Purgatives/ laxatives.
   - Antidiarrhoeals.

4) Cardiovascular Drugs
   - Antiarrhythmic drugs.
   - Inotropic drugs.
   - Antihypertensive drugs.
   - Thrombolytics/ anticoagulants/ antiplatelets.
   - Antihyperlipidemic drugs.
   - Anti-anginal drugs.
   - Drug management of CCF.

5) Diuretics

6) Autocoids

7) Drugs Acting on Autonomic Nervous System Cholinergic Drugs.
   - Choline esters.
   - Anticholine-esterases cholinomimetic alkaloids.

   Anti-cholinergic drugs
   - Anti muscarinic
   - Anti nicotinic

   Sympathomimetics / adrenergic drugs:
   - Catecholamine
   - Non catecholamine

   Sympatholytics/antiadrenergics
   - Alpha adrenergic receptor blockers.
   - Beta adrenergic receptor blockers

   Adrenergic neuron blockers

   Autonomic ganglionic blockers

   Skeletal muscle relaxants
   - Alpha adrenergic receptor blockers.
   - Beta adrenergic receptor blockers

   A) neuromuscular blocking agents - d-tubocurarine, suxamethonium, etc.
   B) central muscle relaxants , meprobamate, mephenesin, diazepam, etc.
8) Central Nervous System
   a. Sedative-hypnotics.
   b. Anti-epileptics.
   c. General anaesthetics.
   d. Local anesthetics.
   e. Drugs for movement disorder/ muscle relaxant.
   f. Alcohol.
   g. Drugs for migraine.
   h. Stimulants of the central nervous system:
      - Caffeine, theophyline, theobromine
      - Brain stem stimulants: picrotoxin, nikethamide.
      - Ethamivan, doxapram.
      - Spinal cord stimulants: strychnine.
   i. Psychopharmacology:
      - Anti-psychotics.
      - Anxiolytics.
      - Anti-depressant / anti mania drugs.
      - Alcohol and drugs of abuse.
      - Anti-parkinson drugs.
      - Anti epileptic drugs

9) Analgesics
   a. Opioids and narcotics analgesics.
   b. Nonsteroidal anti inflammatory drugs (nsaid).
   c. Antigout drugs.

10) Drugs Acting on Respiratory System
    a. Drugs used in treatment of bronchial asthma.
    b. Expectorants.
    c. Mucolytics.
    d. Antitussives.

11) Drugs Acting on Endocrine System
    a. Pituitary-hypothalamic drugs.
    b. Adrenocorticoids.
    c. Sex hormones
    d. Thyroid/ parathyroid drugs.
    e. Pancreatic hormones and oral anti diabetic drugs.
    f. Oral contraceptives and anabolic steroids.

12) Drugs Acting on Uterus
    a. Ergometrine.
    b. Terbutaline.
c. Dinoprostone.
d. Carboprost.
e. Ritodrine.
f. Oxytocin.

**Antimicrobial Drugs**

a. Sulfonamides.
b. Penicillins.
c. Cephalosporins.
d. Aminoglycosides.
e. Tetracyclines.
f. Macrolides:
   - Chloramphenicol.
g. Quinolones.
h. Anti- tuberculous drugs.
i. Antileprosy drugs.
j. Anti fungal drugs.
k. Antiviral drugs.
l. Anti-protozoal drugs:
   - Anti- malarial drugs.
   - Anti-amoebic drugs.
m. Urinary tract antiseptics.
n. Anti cancer drugs.
o. Immunosuppressive agents.
p. Miscellaneous.
q. Vaccines and immunoglobulin drug interaction.
PRACTICALS

A - EXPERIMENTAL PHARMACOLOGY

Experiments designed to observe the action of drugs on animals and isolated tissue.

Experiments on the actions of selected drugs to be demonstrated to the students.

1. Effects of drugs on reflex time.
2. Effects of drugs on frog's heart in situ.
3. Effects of drugs on rabbit's eye.
4. Effects of Acetylcholine and Atropine on isolated rabbit's ileum.
5. Effects of histamine and antihistamines on isolated rabbit's ileum.
6. Schemes to find out unknown drug having stimulatory or inhibitory effect on isolated rabbit's ileum.
7. Effects of neuromuscular blocking agents on frogs rectus abdominus muscle.
8. Methodology of clinical trials.
9. Introduction to Biostatistics.

B. PRESCRIPTION WRITING

General principles

1. General principles
2. Guideline for rational use of drugs
3. Prescription writing for common ailments
   1. Acute watery diarrhea
   2. Bacillary dysentery
   3. Amoebic dysentery
   4. Ascariasis
   5. Tape-worm infestation
   6. Acute streptococcal pharyngitis
   7. Iron deficiency anemia
   8. Allergic rhinitis
   9. Scabies
   10. Acute malarial fever
   11. Cerebral malaira
   12. Typhoid fever
   13. Bronchial asthma
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- Hypertension
- Migraine
- Cardiac failure
- Shock
Clinico-Pharmacological Seminars on Rational Drug Therapy and Drug Interaction should be conducted

Antibiotics:
Frequency distribution of antibiotic prescribed in different clinical settings/units. Rational prescribing pattern of antibiotics.
Parameters: provisional diagnosis, investigation, empirical therapy. Prescribing after culture and sensitivity.

Vitamins:
Parameters
Groups of vitamin prescribed.
Vitamins prescribed on basis of therapeutic indication or empirical.
Single / multiple vitamins
Frequency of prescribing and rational use of vitamins/ otherwise.

Analgesics
Parameters
c. Non specific indications of analgesic prescription.

Adverse Drug Reactions
a. Anti-microbials, Cytotoxic drugs, Steroids etc.

RECOMMENDED BOOKS

2. Pharmacology by Champe and Harvey, 2nd Ed., Lippincott Williams & Wilkins.
C. FORENSIC MEDICINE & TOXICOLOGY

The course outline is as follows:

1. FORENSIC MEDICINE
   a) Pakistan’s Legal System:
   b) Forensic Sciences:
      Role of Forensic Sciences in crime detection.
   c) Law in relation to medical men:
      Privileges and obligations of Registered medical practitioner. Doctor-patient relationship in the context of the highest ethical standards. Temptations to professional misconduct. Guarding professional secrets and privileged communication. Maintaining highest ethical principles in medical examination and when obtaining consent. Medical negligence. Declaring Brain death, using the highest ethical and biological principles for the decision. The pros and cons of organ transplantation in each individual case.
      Develop and defend a personal moral view on Artificial insemination, Therapeutic abortions, Euthanasia, Biomedical research etc. in keeping with the norms of society and highest ethical principles.
   d) Personal Identity
      Parameters of personal identity, methods of identifying living, dead, decomposed, mutilated and burnt bodies, and skeletal and fragmentary remains, using special techniques (Dentistry Radiology, Neutron Activation Analysis etc.), and objective methods of identification (Osteometry, Dactyloscopy, D.N.A. Technique, Super imposition photography, etc.) Describe the role of various blood groups in resolving paternity and maternity disputes. Methods to determine time since death.
      Methods of determination of age, sex and race by various
methods with their medico-legal aspects.
Methods to trace evidence, Locard’s Principle of exchange and its medico-legal significance.
e) **Thanatology**

Scientific concepts regarding death, medico-legal aspect of brain death, indicators of death, medico-legal aspects of sudden and unexpected deaths, causes, manner, mode and mechanisms of death.

Physicochemical changes subsequent to death occurring in various body tissues and organs under various environmental conditions.

To write a certification of death according to W.H.O guidelines.

f) **Traumatology**


ii) *Mechanical injuries medicolegal considerations*: Laws in relation to causing bodily harm, wounding and homicide.
- Examination of an injured person, certify nature, manner of injury, causative agent and dating of wounds.
- Link Sequelae of trauma to its original cause and search for the relationship of sequelae to pre-existing disease.
- Causes of death from wounds.
- Difference between ante-mortem and post-mortem wounds.
- To diagnose whether death is suicidal, homicidal or accidental.

iii) The student should also have knowledge of and be able to describe methods of treatment and possible etiologies of regional injuries, and should be able to suture simple superficial wounds of:
- Head (scalp, skull, brain) and face, vertebral column and its contents, neck, chest, abdomen, limbs, bones and joints.
- Special trauma such as transportation injuries, police torture, and
- Death in custody
and
Should be able to determine the medico-legal aspects of heat, cold, electrical injuries.
g) **Violent deaths due to asphyxia**

Anatomical, physiological, biochemical and pathological signs of violent death and of mechanical, chemical and environmental as physical death and their medico-legal implications. Death due to drowning.

h) **Autopsy:**

- Types, objectives, rules, and techniques and describe procedure for postmortem.
- Procedure for selection and preservation, labeling and dispatch of biological and non-biological materials for laboratory examination; and collection of relevant samples.
- Exhumation procedures, and their value and limitations.

i) **Forensic Sexology.**

Virginity, pregnancy and criminal processes during delivery, their medico-legal aspects, examination procedure and reporting.

j) **Sexual offences and relevant sections of law (Zina and Hudood Ordinance)**

- Natural and unnatural sexual offences. Medical examination of victim and assailant, collection of specific specimens and writing a required certification.
- Common sexual perversions and their cause.

k) **Miscarriage**

Medico-legal aspects applicable to miscarriage examining mother and aborted material.

Sending aborted material in proper preservative for examination.

l) **Crime against new born, infants and child:**

Infanticide, and criminal and non-accidental violence or abuse to a newborn, infant or child.

m) **Forensic Psychiatry**

- To diagnose mental illness.
- To distinguish between true and feigned insanity.
- To advise on procedure of restraint of the mentally ill,
Limitations to civil and criminal responsibilities of mentally ill.
n) Examination of biological specimens
- Forensic importance of biological specimens (blood, semen, salvia, vomitus, breath, urine, hair),
- The method of their collection, preservation, dispatch and the common laboratory tests performed.

2. TOXICOLOGY
a) General principles of Toxicology
- The scope of Toxicology.
- To access the laws regulating drugs and noxious products.
- Common Toxicants in our environments and their abuse.
- Cause of drug dependence, the fate and detoxification of poisons in the biological tissues.
- To diagnose toxicological cases in acute and chronic exposure in living and dead. Utilize general principles of treatment with antidotal therapy and management.
- To handle specimens, work within the framework of duties of Doctor in cases of poisoning to prepare and interpret chemical examiners reports.

b) Autopsy techniques with collection, preservation and dispatch of biological material to analytical laboratory.

c) Specific Poisons
Poisons/drugs of abuse prevailing in our society along with medico-legal aspects:

i) Alcohol
ii) Opiates, opioids and other narcotics
iii) Salicylates and paracetamol
iv) Hypnotics and sedatives
v) Stimulants (cocaine), cannabis
vi) Poisonous plants (aconite, belladonna, hyoscyamus, stramonium, digitalis, ergot, mushrooms, nux vomica, oleander, tobacco)
vii) Venomous insects (snakes)
viii) Inorganic elements, antimony, arsenic, lead, mercury, phosphorus
ix) Volatile poisons and corrosives (carbon monoxide, hydro carbons, cyanides, sulfuric acid, oxalic acid, carbolic acid and alkalis)
x) Pesticides, herbicides and insecticides
Forensic Medicine
a) Oral
b) Practical
c) Note book

Toxicology
a) Oral
b) Practical
c) Note book

Learning Methodology:
Recommendations are as under:-

A) Theory in the form of tutorials, seminars, videos and lectures
B) Practical in the form of :
   ③ Demonstrations
   ③ Posting in autopsy rooms
   ③ Postings such as in medico-legal clinics / casualty departments / poison centers.
   ③ Experiments in biological laboratory.
C) Visits.
D) Periodical tests will provide feedback to the teachers and assess adequacy of learning.

Practical work will include

1. In Forensic Medicine
   ② Autopsies
   ② Medico-legal examination of injured
   ② Estimation of age and forensic radiology
   ② Sexual assaults and sex related cases (impotence, pregnancy etc.).
   ② Procedure of preservation, dispatch of biological and other evidentiary material.
   ② Practical in biological laboratory (identification of blood, semen, saliva, etc.).
   ② Procedure of consent taking and medical certification.

2. In Toxicology, students should have an understanding of and be able to describe :
   ② Diagnostic and management process (alcohol, narcotics and
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- Collection, preservation and dispatch of biological materials.
- Visual, olfactory and tactile identification of common poisons found in communities and country.
3. Visits

For proper orientation and practical demonstration, visits are also suggested to a:

- Court.
- Forensic science laboratory.
- Psychiatric unit or jail
- Site during conduction of exhumation.

RECOMMENDED BOOKS

1. **Simpson’s Forensic Medicine** by Barnard Knight, 11th Ed., Edward Arnold, London.


5. **Medical Jurisprudence and Toxicology** by Dr. Siddique Hussain.