

# **SYLLABUS OF DIPLOMA IN UNANI PHARMACY**

## **First Year**

- i. *Mabadiyaat-e-Tib* (Basic Principle of Unani Medicine) wa Kuliyat Advia
- ii. Tashreehul Badan (Anatomy) wa Munafe ul Aaza (Physiology)
- iii. Advia-e-Mufridah wa Advia Jadeedah
- iv. Samaji Tib and Tib-e-Qavaneen Advia (Social Medicine & Pharmaceutical Jurisprudence)
- v. Science or Arabic

## **Second Year**

- i. Ilmul Saidla
- ii. Murakkabaat
- iii. Drug Store and Business Management
- iv. Aspatali wa sareeriyati Saidla (Hospital and Clinical pharmacy)

**First Year**

**Paper I - *Mabadiyaat-e- Tib* (Basic Principles of Unani Medicine) wa Kulliyat Advia**

**PART A**

***Mabadiyaat-e- Tib***

- a) Introduction of Unani Medicines, Definition of Tib, its aims and adjectives.
- b) History of Unani Pharmacy.
- c) Introduction in of different subjects of Tib.
- d) Definition of Tabiyat and Umoor-e-Tabiyah.
- e) Definition of Arkaan, Number (Different theories and Mizaj of Arkaan).
- f) Mizaj-Definition, types and Importance Imzijah Asnan,Aqaalim.
- g) Akhlat-Definition, types, Khilt-e-Safra, Balgham, Dam,Sauda,Importance.
- h) An Introduction of Aza, types, Importance.
- i) Introduction of Arwah, types,Importance.
- j) Introduction of Quwa, types, Importance.
- k) Introduction of Afal, types,Importance.
- l) Introduction of Usool-e-ilaj.
- m) Brief introduction of tools for diagnosis.

**PART B**

**Kulliyat Advia**

- 1. Tareef. Tareekhi pass-e-Manzer and scope of Shanakhat-e-Advia.
- 2. Dawa Ghiza Zulkhassa,
- 3. Mizaj Advia, Aqsaam (Temperament, Classification of drugs)
- 4. Masalik Advia (Routes of drugs administration).
- 5. Taseerat Advia (Action of drugs).
- 6. Ashkale Advia (Forms of drugs)
- 7. Qayas wa Tajurba (Hypothesis and experiment for new drug development).
- 8. Dawaon ka Husool wa Hifazat (Collection and preparation drug)
- 9. Preparation and identification of fibres used in sutures and surgical dressings- cotton, silk, wool and regenerated fibre.
- 10. Muzir wa Muslh (Adverse drugs effect and its correction)

## **Paper II - Tashreehul Badan (Anatomy) wa Munafe ul Aaza (Physiology)**

### **PART A**

#### **Tashreehul Badan (Anatomy)**

1. Tashreehul Badan ka ta'aruf (Introduction of Anatomy):
  - a. Nizame Jismani ka mukhtasar ta' aruf (A brief description of all systems of the body).
  - b. Tashreehi waz'a wa Muta'alliqa istilahat (Anatomical position and related terminologies).
  - c. Jild aur us ke zawa'id (Skin and its appendages).
  - d. Lafaif-e-satahiya wa ghaairah (Superficial and deep Fasciae).
  - e. Autar, Ribatat aur Akyase zulaliya (Tendon, Ligaments & Bursae).
2. Izaam (Bones): Aqsaam, af'aal wa ta'azzum (Types, functions and ossification).
3. Azlaat (Muscles): Aqsaam wa af'aal (Types and functions).
4. Mafasil (Joints): Aqsaam wa harakat (Types and movements).
5. Nizam-e-urooqi wa dam (Blood Vascular System).
6. Nizam-e-limphavia (Lymphatic System).
7. Nizam-e-asab wa Hawas-e-Makhsoosah (Nervous System & Special Senses).
8. Nizam-e- tanaffus (Respiratory System).
9. Nizam-e- Hazam (Digestive System).
10. Nizam-e- bol-oTanasul (Urogenital System)
11. Nizam-e- La' Qanatiyah (Endocrine System)

#### **Juze Amali (Practicals)**

- A) Identification and description of all anatomical structures.
  - a. The learning of Anatomy is by demonstration only through models, charts, etc.
  - b. Demonstration of (upper extremity, lower extremity, thoracic &
  - c. Abdominal viscera, face and brain).
  - d. Demonstration of skeleton- articulated and disarticulated.
  - e. During the training more emphasis will be given on the study of bones, muscles,
  - f. Joints, nerve supply of the limbs and arteries of limbs.
  - g. Surface anatomy: -surface land mark-bony, muscular and ligamentous.
  - h. -surface anatomy of major nerves, arteries of the limbs.
  - i. Points of palpation of nerves and arteries.
- B) Record book has to be maintained by the students.

**PART B**  
**Munafe ul Aaza (Physiology)**

**Chapter1.** Munafeul Aaza ki Tareef (Definition of Physiology) Tamheed wa Istilahat (Introduction & Terminologies of Physiology) Khaliya (Cell): Khurdbeeni Saakht wa Af'aal (Microscopic structure of cell & its functions) Taqseeme Khaliya (cell division), Sartani khaliyaat (Cancerous cells).

Iimul Khalq (Genetics): Tamheed (Introduction) Khuyoote Nasliya ka mutalea (study of chromosomes), Deoxyribonucliyaee Tursha (Deoxyribonucleic Acid), Ribonucliyaee Tursha (Ribonucleic Acid), Jinsi Amraaz ka ta'ruf (Introduction of sexual diseases)

**Chapter2.** Ansija, Tareef and Aqsaam (Tissues, definition & types), Khurdbeeni Sakht (Histological structure), Naseeje Bashri, Naseeje Wasil, Naseeje Azli wa Naseeje Asabi ka phailao wa af'aal (Distribution & functions of Epithelial, Connective, Muscular and Nervous Tissues)

**Chapter3.** Dam (Blood): Nizame Tauleede Dam (Haemopoietic System) Ta'reef (Definition) Af'aal (Functions), Dam ka Hajam (Blood volume) Dam ke Ajzae tarkeebi (composition of blood)

**Chapter4.** Nizame Lymnphawiya wa Nizame Shabki Bas utoobate Lymphawia ki tauleed wa tarkeeb (formation & composition hri Batani of lymph), (Lymphatic & Reticulo-Endothelial Systems):

**Chapter5.** Nizame Hazm (Digestive System): Tamheed (Introduction), Khurdbeeni Sakht (Histological structure of Alimentary tract), Ghudade Luabia (Salivary Glands), Rutoobate Hazima ka Tarash'shuh, Tarkeeb wa Afal (Secretion, composition & functions of Digestive juices), Mawade Nashaiya, Mawade Lahmiya aur Mawade shahmiya ka Hazm wa Injizab (Digestion & absorption of Carbohydrates, Proteins and Fats). Ihastila (Metabaulism): Tareef (Definition), Bunyadi Istihale ki sharah (Basal Metabaulic Rate), Bunyadi Istihale kay failiyatee taghayyurat (Physiological variations of B.M.R.)

**Chapter6.** Nizame Daurane Dam (Blood Circulatory System):), Qalbi wa Urooqi Nizam ki Khurdbeeni Sakht (Histological structure of Cardio Vascular System), Aqsaam (types of Blood Circulation), Daurae Qalbi (Cardiac cycle). Aswate Qalb (Heart sounds), Suqoote Qalb (Heart Block), Zarbae Qalb (Heart Beat), Hajame Zarbi (Stroke Volume), Markaze Qalb aur uskay af'aal (Cardic centre & its functions), Qalbi Barq nigari (ECG): Fisharuddam aur uskay failiyati awaamil (blood pressure and its physiological factors)

**Chapter7.** Nizame tanaffus (respiratory system): tanaffusi aaza ki tamheed (introduction of the various respiratory organs), nizame tanaffus kay af'aal (functions of respiratory system), suaale maakoos (coughing reflex), atse maakoos (sneezing reflex), ka maikania (mechanism of respiration), masnui tanaffus aur uskay mukhtalif tareeqay (artificial respiration & its different methods), Hajame raewia (pulmonary volume), wasate raewia (pulmonary capacity)

**Chapter8.** Nizame ikhraje baul (Excretory system): Aazae baul ka mutala ), Killiya ki saakht aur uskay af'aal (structure and functions of kidney), baul ki paidaish (formation of urine), baul ki tarkeeb (composition of urine), baul kay tabaee wa ghair tabaee ajza ka mutala (study of normal and abnormal constituents of urine), Turshi qalawi tawazun (acid base balance), ikhraaje baul ka amal [tabawwul] (micturition).

**Jild (skin):** Jild ki saakht (structure of skin), jild kay af'aal (functions of skin), paseene ka tarash'shuh [taareeq] (perspiration), hararate ghareezia/badaniya aur uska tawazun (thermo regulation in the body) ghair tabaee haratebadaniya wa qillate hararate badaniya [intiqase hararat] (abnormal & sub-normal temperature).

**Chanter9. Nizame tauleed wa tanasul (reproductive system):** mani kay ajzae tarkeebi (composition of semen), haiwane manwiya kay irtiqae madarij (spermatogenesis), daurae tams (menstrual cycle), daurae tams par estrogen aur progesterone kay asaraat (effects of estrogen & progesterone on menstruation), ikhraje baiza (ovulation), bar aawari wa istiqraare hamal (fertilization & implantation).

**Chapter10.** Nizame assab (nervous system): Nizame asbi ke aam usool (general principles of nervous system), synapses, ghair iradi nizame asabi (autonomous nervous system), hypothalamus aur uske af'aal (hypothalamus and its functions). Aazae Hawase khaassa (special sensory organs):

Nizame ghudade la qanati (endocrine system): Ghudade la qanati ka aam bayan (general description of endocrine glands), mazkoora tamam ghudud ke raseelaat wa af'aal (hormones of all endocrine glands and their functions).

### **Munafe-ul-Aaza—Juze Amali (Physiology- Practicals)**

Hmrattuddam ki takhmeen (estimation of haemoglobin), kurriyaate humra ki theh nasheeni ki takhmeen (estimation of erythrocyte sedimentation rate) waqfae injimaaduddam wa jiryanuddam ki takhmeen (estimation of clotting & bleeding time), kurriyaate baiza ka majmuee shumaar (total leucocyte count), kurriyaate baiza ka taf'reeqee shumaar (differential leucocyte count).

**Hayatiyati keemiya (bio-chemistry):** Dam main shakare angoori ki takhmeen (estimation of blood sugar), Mutaaliae baul (urine examination): qaarooraah main shakare angoori, mawaade lehmiya baizawi, acetone, bile salts aur bile pigments ka imtihaan wa takhmeen (examination & estimation of sugar, albumin, acetone, bile salts and bile pigments in the urine).

qalbi barq nigari (ECG), eqae istemal (the use of sphygmomanometer)

### **Paper III - Advia-e-Mufridah wa Advia Jadeedah**

#### **PART- A**

#### **Advia-e-Mufridah**

**(Advia ka Tajzia, Milavat, aur Qarabadeeni mayyaar ki Ahmiyat)**

1. Alkaloids, Glycosides, Volatile oils, Tannins and Resins ka Tarruf.
2. Munderja zel advia ki Mahiyat, Mizaj, Afaal, Istemal, Miqdar khurak, Murakkabat, Kimiaee ajza aur jadeed maloomat.

*Azarqi, Afyiu, Arusa, Aspghol, Abhal, Abresham, Afsanteen, Ajwain Desi, Amla,, Amaltas Ustokhuddos, Asaroon, Asgand, Anjabar, Afteemoon, Anisoon, Inderjao, Ispand, Atees, Aslus soos, Elva, Babchi, Badiyaan, Baleela, Bazrulbanj, Bura Armani, Bozidan, Banafsha, Baboona, Bartang, Beladur, Beesh, Biskhapra, Baid, Bisbasa, Behrozah, Bisbasa, Darchini, Dammul Akhwain, Dhatura, Darmana, Parshiyaonshan, Plas, Turbud, Turanj, Toodri, Tinkar, Salab Misri, Jadwar, Jalapa, Junityana, Chaksu, Chiraita, Habbul Aas, Habbus Salateen, Zard Chob, Haleela, Hanzal, Hilteet, Kafoor, Karanjwah, Khaksi, Khatmi, Qarnul Ayyal, Kabab chini, Kasoos, Kasni, Kameela, Kundur, Gile Multani, Gilo, Gile Armani, Luk, Loban, Muqil, Mur, Malkangani, Mako, Mastagi, Mundi, Murdar Sang, Rewand Chini,, Satawar, Sena, Shahatra, Qaranfal, Waj, Halyun, Zanjabeel*

#### **PART B**

#### **Adviah Jadeedah (Pharmacology)**

1. Introduction and scope of Pharmacology,
2. Routes of administration of drugs, their advantages and disadvantages.
3. General mechanism of drugs action and the factors which modify drug action. Various process of absorption of drugs and the factors affection them, Metabolism, distribution and excretion of drugs.
4. Pharmacological classification of drugs.
  - (i) Drugs acting on the Central Nervous System:
  - (ii) Local anaesthetics.
  - (iii) Drug acting on autonomic nervous system.
  - (iv) Drugs acting on eye
  - (v) Drugs acting on respiratory system
  - (vi) Antacids
  - (vii) Cardio Vascular drugs,
  - (viii) Drugs acting on the blood and blood forming organs.

- (ix) Drugs affecting renal function-Diuretics and antidiuretics.
- (x) Hormones and hormone antagonists
- (xi) Drugs acting on digestive system
- (xii) Chemotherapy of microbial disease

### **Practical**

1. Advia ki Mahiyati shinakht.
2. Tabiaati aur kimiyavi tajzia
3. Jamey Tashreehi Muaena (TS, LS etc)



## **Paper IV - Tahaffuzi wa Samaji Tib and Pharmaceutical Jurisprudence**

### **PART A**

#### **Tahaffuzi wa Samaji Tib (Preventive and Social Medicine)**

**Tahaffuzi wa Samaji Tib (Preventive and Social Medicine):** Definition, historical background, importance, aims and objectives

**Sehat (Health):**, aims & objectives and guidelines for health, Shakhshi Hifzane Definition Sehat (Personal Hygiene) and Sehat-e Aamma (Public Health) Detailed discussion of Asbaabe sitta zarooriya (Six essentials of life).

**Marz (Disease):** Definition and causes of Disease

**Tabae Mahaul (Physical Environment):** Fizaee Mahaul (Atmospheric environment), Mahauliyati Safaai (Environmental sanitation) Components of Tabae Mahaul (Physical Environment) and its related causes. Factors affecting Physical Environment

**Sehat par Mausam ke Asraat aur Awarizaat (Effects & complications of seasons on Health):**

**Indifae Fuzlaat (Disposal of Waste):** Methods of Disposal of refuse Water:

Definition of normal and abnormal water, importance, qualities of safe and wholesome potable water, sources of water,

**Mashroobat (Drinks):** Effects of narcotics on health

**Ghiza wa Taghzia (Food and Nutrition):** Definition, importance of Diet, classification of Diet according to the source, Dietary constituents and functions

Calories of various Diets, Daily requirements of Diet in various age groups Balanced Diet, Selection of Diet according to age, sex, and season Various methods for safety and preservation of Diet, Naqse taghzia (Malnutrition) and Diet related diseases and their preventive measures Tasammume ghizae (Food Poisoning), Dietary importance of Milk, Amale Pasture (pasteurization), Milk born diseases and their prevention

**Hayateen (Vitamins):** Definition, types, sources, daily, requirements, Diseases related to the deficient or excess intake of Vitamins.

**Ghiza mein Madaniyat (Minerals in Diet):** Names of minerals and their advantages

Diseases related to the deficient or excess intake of Minerals **Shakhshi Hifzane Sehat (Personal Hygiene): Libaas (Clothing)** Sources and types, selection of clothes according to season and their importance.

Zabte Tauleed wa Khandani Behboodi (Birth Control and Family Planning)

**Mutaadi wa Wabaee Amraaz (Infectious and Epidemic Diseases)**

Asbaabe wa'sila wa Moidda (Causative and predisposing factors)

Causes, Sign and Symptoms, Differential Diagnosis, Muddate Hizanat (Incubation Period),

**Amale Talqeeh (Vaccination):**

Definition, Hospital background, methods of Vaccine preparation, types of Vaccines,

**Amale Tattheer (Sterilization):** Definition, importance & necessity, importance of sterilization in epidemic, latest methods, Natural, Physical & Chemical.

**Dafe taffun (Disinfectant)** Sources, methods of disinfection and their indications

**Waba (Epidemic):** Definition, Mode of Spread and their preventive measures, **Taadiya (Infection):** Definition, mode of spread, routes of entry of infection,

**Mana 'at (Immunity):** Definition, types, methods of Immunization

**San'atee Tib (Industrial Medicine):** Definition, historical background, importance of various occupations, Factories and their conditions,

San'ati Aaloodgi (Industrial pollution) and related diseases, San'ati khatraat (Occupational Health Hazards) and their prevention.

**Aalami sehati Tanzeemaat (International Health Organizations):**

World Health Organization (WHO), United Nations International Children Emergency Funds (UNICEF), Food and Agricultural Organization (FAO).

**Sehati (Health) Programmes:**

Primary Health Centers (PHC)

Amla Ata Declaration "Health for all by 2000 AD"

**Juze Amali (Practical)**

1. Demonstration of Water purification
2. Identification of disinfectants and their application
3. Demonstration of different Vaccines
4. Information about infectious and Epidemic diseases through permanent slides and Audio Visual Aids.
5. National Health Programmes

**PART B**

**Pharmaceutical Jurisprudence**

Definition of Ilmus Samoom (Toxicology) and Samm (poison).

Classification of poisons. Route of administration of poisons. Modifying factors of the action of poisons. Diagnosis & general principals of treatment in poisoning. Anboob Medi (Stomach tube) its indications & contraindication. Indications & contraindications of Muqee (emetics) Methods of neutralizing the absorbed poison.

Triyaq (Antidotes) Modern & Unani antidotes, its type and uses methods of preservation of organs for chemical examination. Characteristic poisoning symptoms, Mohalik Miqdar(fatal dose), Muddate Halakat( fatal period), treatment, Zawahir Tashreeh Baadul Mouth (Postmortem appearance) & Tibbe Qanooni Nazaryiah (medico-legal aspect) of the following poisons.

**A. Samoom e Akkaal (Corrosive poisons)**

**Haamiz (Acids):** Hamiz Kibriyati (Sulphuric acid), Hamize Malhi (Hydrochloric acid), Hamize Shora (nitric acid), Hamize Khali (Acetic acid), Hamize Qatran (Carbolic acid), oxalic acid & hydrocyanic acid.

**Qalviyal (Alkalis):** Nutrun Kawi (Caustic Soda), Qalmi Qavi (Caustic Potash), Choona (Calcium oxide)

**B. Samoom Lazival (Mohiyyij) (Irritant Poisons)**

**Samoom Ma'dani (Metallic):** Sammol Far (Arsenic) & its compounds. Seemab (Mercury) and its compounds, Sisa (Lead oxide), antimony,

**Ghair Dhatee (Non metallic):** Chlorine, iodine, Nooreen (phosphorus)

**Samoom Nabaati (vegetable poisons):** Biladur (Semicarpus anacardium), Madaar (Calotropis), Habbus Salateen (Croton seed), Sibr (Aloe), Shahme Hanzal (colocynth), Ghoonghchi (Abrus precatorius)

**Samoom Haiwani (Animal poisons):** Symptoms & treatment of Ladahul Hayya, (Snake bite), Aqrab (Scorpion bite), Telni Makkhi (Canthride).

**C. Samoom Asbi (Neurotic poisons)**

**Cerebral (Dimagi):** Opium, Alcohol, Chloroform, Kerosene oil, Cocaine, Thorn apple, Cannabis indica (Bhung), Belladonna (Yabrooj), Hyocyamus niger (Ajwaine Khurasani)

**D. Nukhayee (Spinal):** Nuxvomica (Azaraaqi)

**E. Qalbee (Cardiac Poison):** Tambakoo (Tobacco), Beesh (Aconite).

**Characteristic poisonous symptoms, fatal dose, fatal period, treatment, postmortem appearance and medico-legal importance of the following poisons:**

Carbon monoxide, carbon dioxide, hydrogen sulphide, coal gas.

F. Description of house hold poisons, their poisonous symptoms and treatment, as Tick-20, naphtheline balls, DDT powder, aluminium phosphate, pesticide, cosmetic like hair shampoo, lipstick, skin cream, eye lotion and eye shades.

**Juze Amali (Practical Parts)**

1. Visualization of postmortem.
2. Method of preservation of organs.
3. Visualization of following in the Museum for Tibbe Qanooni & Ilmus Samoom
  - a. Model, charts & instruments
  - b. Different type of Hairs for identification.
  - c. Different antidotes & antiseptic.
  - d. Different poisons.
  - e. Poisonous animals.
  - f. Arrangement of audio- Visual facility.
  - g. The preparation of models & Charts by the students.

## **Paper V - ARABIC**

### **PART A**

1. Kalimah (word) and its kinds, Ism (Noun), Fael (Verb), Harf (Particle)
2. Kalam (Sentence) and its kinds
3. Kalame Tam (Complete Sentence): Jumlah Faeliyah (Verbal Sentence)
4. Kalame Naqis (Incomplete Sentence) Murakkabe Ishari (Directive construction), Murakkabe zaifi (Possession construction),
5. Kinds of Ism (Noun) according to Tareef (Definite Noun) Tankeer (Indefinite Noun)
6. Isme Marifah (Definite Noun) ,and its kinds with the mention of Muaraf bil lam (Noun with definite article) (with explanation of Hurufe Shamsiyyah and Qamariyyah)
7. Ierab (Defining Inflection Sign): Definition and Division: Ierab bil huroof (by letters) and Ierab bil Harkat (by signs)
8. Fael (Verb) and its kinds according to Zamanah (Tense): Mazi (past), Hal (Present) and Mustaqbil (Future)
9. Fael Sulaasi Mujarrad (Triliteral Primitive) and its Abwab (Sections)
10. Gardaan (Conjugation) of Mazi Past tense) and Seghi (Moods)
11. Gardaan (Conjugation) of Muzdare (Aorist) and Seghi (Moods)
12. Division of Maazi (Past) and Muzare (Aorist) according to Marif (Active) and Majhool (Passive)
13. Gardaan (Conjugation) of Faele Amr wa Nahi (Imperative and Prohibitive Verbs)
14. Division of Ism (Noun): Isme Jaamid (Infinitive Noun), Masder (Origin/Source), Mushtaq (Derivative), Isme Fa'el (Active Participle Noun), Isme Maf'ool (Passive Participle Noun), Isme Zarf (Noun of place) and Isme Tafzeel (Comparative and Superlative Noun)
15. Marfual (Nominative cases), Mansubat (Accusative cases) and Majrooat (Genitive cases)
16. Dama'ar Marfooah wa Majrurah wa Mansubah (Pronouns in Nominative, Accusative and Genitive cases) Asmai Isharahjat (Demonstrative Pronoun)  
Asmai Istifham (Interrogative Pronouns), Mawsulat (Relative Pronouns)

### **PART B**

17. Arabi Tibi Istilahat (Arabic Medical Terms) and their uses in sentences

## Second Year

### Paper VI - Ilmul Saidla

#### PART A

##### 1. Dispensing Pharmacy:

1. Prescriptions – Reading and understanding of prescription; Arabic and Persian terms commonly used (Detailed study is not necessary), Modern methods of prescribing, adoption of metric system. Calculations involved in dispensing.
2. Incompatibilities in Prescriptions – Study of various types of incompatibilities – physical, chemical and therapeutic.
3. Dose and Dosage of drugs, Factors influencing dose, Calculations of doses on the basis of age, sex and surface area.

##### 2. Dispensed Medications:

(A detailed study of the following dispensed medication is necessary. Methods of preparation with theoretical and practical aspects, use of appropriate containers and closures. Special labelling requirements and storage conditions should be high – lighted).

- (i) Solid Dosage forms. *Habb, Qurs, Kuhal, Ghazah, Ghaliyah, etc*

**Safoof (Powders):** Types of powders, Advantages and disadvantages of powders, Safoof as different dosage forms, Granules, and Tablet. Weighing methods, possible errors in weighing, minimum weighable amounts and weighing of material below the minimum weighable amount, geometric dilution and proper usage and care of dispensing balance.

- (ii) **Sayyaal (Liquid):** Theoretical aspects including commonly used vehicles, essential adjuvant like stabilizers, colorants and flavours, with examples. Review of the following liquids with details of formulation and practical methods. *Sharbat, joshanda, Khesanda, Zulaal, Siknajebein, Nabeez, Sirkah, Qatoor, Wajoor, Roghan, Huqnah,*

- (iii) **Suspension:** Suspensions containing diffusible solids and liquids and their preparations. Study of the adjuvants used like thickening agents, wetting agents, their necessity and quantity to be incorporated. Suspensions of precipitate forming liquids like, tinctures, their preparations and stability. Suspensions produced by chemical reaction. An introduction to flocculated, non-flocculated suspension system.

- (iv) **Haleeb:** Types, identification of emulsion system, formulation, selection of emulsifying agents. Instabilities in emulsions. Preservation of emulsions.

- (v) **Semi Solid:**

(a) **Marham:** Types, Preparation and stability of ointments by the following processes:

- (i) Trituration (ii) Fusion (iii) Chemical reaction (iv) Emulsification.
- (b) *Zimaad* (Pastes) Difference between ointments and pastes, bases of pastes. Preparation of pastes and their preservation.
- (c) **Jellies:** An introduction to the different types of jellies and their preparation.
- (d) **Tila**
- (e) ***Firzajah and Shayaf:*** merits and demerits, types, bases, properties, Preparation and packing, Use of suppositories for drug absorption.
- (f) *Majoon, Itreefal, Jawarish, khameerah, laooq, Gulqand*
- (vi) **Dental and Cosmetic Preparations:** Introduction to Dentrifices, Facial cosmetics, Deodorants, Antiperspirants, Shampoos, Hair dressing and Hair removers.
- (vii) **Ophthalmic Preparation:** Study of essential characteristics of different ophthalmic preparations. Formulation additives, special precautions in handling and storage of ophthalmic products.

### **PART B**

- 3. ***Ilm-ul-Taklees:*** Definition, aims, objectives and scope. Calcinations and Ignition. Historical background. Standardization of kushta. Principles of calcinations and general methods of preparation of Kushta faulad, hartal, shingraf, sadaf, marjaan, qalyee, gaudanti, qarnul ayyil, sammul faar, nuqra, tila, jast. Etc. Identification of clax. Grading of temperature. Instruments used in preparation of kushta. Use of herbs in calcinations. General precautions to be taken during calcinations process. Adverse effects, Pharmacological action, Precaution in use, determination of shelf life etc
- 4. **Miscellaneous:** Good Manufacturing Practices (GMP), Drug standardization: basic concept, Quality control: basis Concept.

### **Practical**

Dispensing a wide range of preparations such as *Sharbat, Majoon, Joshandah*, emulsions, lotions, Tila, E.N.T, and ophthalmic preparations, *marham, Shayaf, Firzajah*, powders, incompatible prescriptions etc.

## **Paper VII - Ilmul Murakkabat**

1. Need of compound drugs. Determination of temperament of compound drugs.- methods and its importance. Qarabadeen, Kunnash, Bayaaz-definition, methods and its importance, and introduction of famous Qarabadeen Kunnash and Bayaaz.
2. Introduction, ingredients, methods of preparation, action, uses, dosage and precaution of the following compounds.

**Majoon:** Majoon Falasfa, Majoon Dabeed ul Ward.

**Jawaarish:** Jawaarish Jalinoos, Jawarish kamooni

**Khamira:** Khamira Goozaban, Khamira Abresham

**Murabba:** Murabba Amla, Murabba behi

**Habb:** Habb-e-Kabid nausahadri, Habbe Tinkar, Hab e Suranjaan, Hab e Muqil

**Marham:** Marham Dakhliyun, Marham Zangar

**Laoq:** Laoq Sapistan, Laoq-e-Katan

**Safoof:** Safoof-e-Muqliyasa, Safoof-e- Mulayyin

**Qurs:** Qurs-e-tabasheer, Qurs-e-Sartaan kafoori

**Sharbat:** Sharbat-e-Unnab, Sharbat-e-Humma

**Gulqand:** Gulqand aftabi, Gulqand seoti,

**Arq:** Arq-e-kasni, Arq-e-Mako,

**Sikanjjabeen:** Sikanjabeen-e-Nanaayee, Sikanjaabe-e-Unsuli

**Qairooti:** Qairooti Ard Baqla

**Zimaad:** Zimaad Mohallil, Zimad Kabid

**Marham:** Marham-e-Rusul, Marham Zangar

**Tila:** Tils Surkh, Tila Muhasah

**Itrifal:** Itrifal Kishnizi, Itrifal Muqil, Itrifal Ustokhuddus.

**Halwa:** Halwa ghekwar, Halwa Bezemurg

**Mufarraah:** Mufarraah yaqqoti, mufareeh Shaikhur raees

**Sayyal:** Sayyal faulad, Sayyal nuqrah, Sayyal naushadar

**Shayaf:** Shayaf Ahmar, Shayaf abyaz

**Sunoon:** Sunoon Post mugheelaan,

**Kushta:** Kushta sadaf, kushta faulad, kushta gaudanti



## **Paper VIII - Drug Store and Business Management**

### **PART A**

#### **Tijarat (Commerce)**

Introduction-Trade, Industry and Commerce, Functions and subdivision of Commerce, Introduction of Elements of Economics and Management.

1. Forms of Business organisations.
2. Channels of Distribution.
3. Drug House Management – Selection of Site, Space Lay-out and legal requirements.
4. Importance and objectives of Purchasing, selection of suppliers, credit information, tenders, contracts and price determination and legal requirements thereto. Codification, handling of drug stores and other hospital supplies.
5. Inventory Control – objects and importance, modern techniques like ABC,VED analysis, the lead time, inventory carrying cost, safety stock, minimum and maximum stock levels, economic order quantity, scrap and surplus disposal.
6. Sales Promotion, Market Research, Salesmanship, qualities of a salesman, Advertising and Window Display.
7. Recruitment, training, evaluation and compensation of the pharmacist.
8. Banking and Finance Service and functions of the bank, Finance Planning and sources of finance.

### **PART B**

#### **Muhasibat (Accountancy)**

1. Introduction to the accounting concepts and conventions, Double entry Book keeping, Different kinds of accounts.
2. Cash Book.
3. General Leger and Trial Balance.
4. Profit and Loss Account and Balance Sheet.
5. Simple technique of analyzing financial statements.
6. Introduction to Budgeting.

## **Paper IX - Aspatali wa sareeriyati Saidla (Hospital and Clinical Pharmacy)**

### **PART A** **Hospital pharmacy**

1. Hospitals Definitions, Function, Classifications based on various criteria, organisation, Management and Health delivery system in India.
2. Hospital Pharmacy:
  - (a) Definition
  - (b) Functions and objectives of Hospital Pharmaceutical services.
  - (c) Location, Layout, Flow chart of material and men.
  - (d) Personnel and facilities requirements including equipments based on individual and basic needs.
  - (e) Requirements and abilities required for Hospital pharmacists.
3. Drug Distribution system in Hospitals:
  - (a) Out – patient services
  - (b) In- patient services – (a) types of services (b) detailed discussion of unit Dose system, Floor ward stock system, Satellite pharmacy services, Central sterile services, Bed Side Pharmacy
4. Manufacturing :
  - (a) Economical considerations, estimation of demand.
  - (b) Sterile manufacture-large and small volume parenterals, facilities, requirements, layout production planning, man- power requirements.
  - (c) Non-sterile manufacture – Liquid orals, externals-bulk concentrates.
  - (d) Procurement of stores and testing of raw materials.
5. Nomenclature and uses of surgical instruments and Hospital Equipments and health accessories.
6. Hospital Formulary System and their organisation, functioning, composition.
7. Drug Information service and Drug Information Bulletin.
8. Surgical dressing like cotton, gauze, bandages and adhesive tapes including their pharmacopoeial tests for quality. Other hospital supply e.g Ryals tubes, Catheters, Syringes etc.
9. Application of computer in maintenance of records, inventory control, medication monitoring, drug information and data storage and retrieval in hospital and retail pharmacy establishments.

**PART B**  
**Sareeriyati Saidla (Clinical Pharmacy)**

1. Introduction to Clinical Pharmacy Practice – Definition, scope.
2. Modern dispensing aspects – Pharmacists and Patient counselling and advice for the use of common drugs, medication history.
3. Common daily terminology used in the Practice of Medicine.
4. Disease, manifestation and pathophysiology including salient symptoms to understand the disease like Tuberculosis, Hepatitis, Rheumatoid Arthritis, Cardiovascular diseases, Epilepsy, Diabetes, Peptic Ulcer, Hypertension.
5. Physiological parameters with their significance.
6. Drug Interactions:
  - (a) Definition and introduction.
  - (b) Mechanism of Drug Interaction.
  - (c) Drug – drug interaction
  - (d) Drug – food interaction.
7. Adverse Drug Reactions.
  - (a) Definition and Significance.
  - (b) Drug – induced diseases and Teratogenicity.
8. Drugs in Clinical Toxicity – Introduction, general treatment of poisoning, systematic antidotes. Treatment of insecticide poisoning, heavy metal poison, Narcotic drugs, Barbiturate, Organophosphours poisons.
9. Drug dependences, Drug abuse, addictive drugs and their treatment, complications.
10. Bio- availability of drugs, including factors affecting it.

**Practical**

1. Testing of raw materials used in.
2. Evaluation of surgical dressings.
3. Sterilization of surgical instruments, glass ware and other hospital supplies.
4. Handling and use of data processing equipments.