

**PRELIMINARY EXAMINATION**

**PAPER-I**

**(Common Paper for all Specialities)**

**Research Methodology and Biostatistics**

**Research Methodology**

- **Types of research**
  - (a) Literary research
  - (b) Clinical research
  - (c) Experimental research
  - (d) Observation and field studies
  
- **Trends and possibilities of R&D of Unani Drugs**
  
- **Research problems**
  - (a) Definition
  - (b) Selection and sources of research problems
  
- **Hypothesis**
  - (a) Types: Null and alternate hypothesis
  
- **Research designs**
  - (a) Types of Research designs
  
- **Controls in research designs**
  - (a) Selection criteria
  - (b) Placebo and plain control
  - (c) Randomization
  - (d) Balancing and matching
  
- **Factors effecting research results.**
  
- **Tools and techniques in research**
  - (a) Interview, questionnaire, inventories, scales
  - (b) Rating scales
  
- **Computer programmes used in research**
  - (a) Minitab
  - (b) SPSS
  
- **Protocols for research and report writing**
  - (a) Protocols for experimental, clinical and community based research.
  - (b) Writing research report.
  - (c) References in research report.
    - (i) Books

- (ii) Journals
- (iii) Compendia
- (iv) Bulletins
- (v) WHO Reports
- (vi) Internet Sites

- **Guidelines for Research**

- (a) WHO
- (b) ICMR
- (c) CPCSEA

**Bio-Statistics**

- **Scope and utility of Biostatistics**

- **Descriptive Statistics**

- (a) Analysis of Data
  - (i) Data collection, tabulation and presentation of data.
  - (ii) Measure of central tendency – Mean, Median and Mode.
  - (iii) Measures of dispersion: Range, quartile deviation, standard deviation.

- (b) Probability

- (i) Definition and laws of probability
- (ii) Types of probability distribution
- (iii) NPC and its application size
- (iv) Randomized samples

- (c) Sampling

- (i) Types and sample size
- (ii) Randomized sampling

- **Inferential Statistics**

- (a) Correlation and linear regression

- (i) Karl Pearson correlation coefficient
- (ii) Linear regression equations.

- (b) Test of significance

- (i) 't' test
- (ii) 'z' test.

- (c) Test of variance

- (i) ANOVA one way
- (ii) ANOVA two way
- (iii)  $X^2$

- (d) Non-parametric tests

- (i) Median test, Mann Whitney U test.
- (ii) Kruskal Wallis test, Fried test.

- **Vital Statistics**

- (a) Rate and Ratios
- (b) Standardization of population
  - Risk factors

**PRELIMINARY EXAMINATION**

**ILMUL ADVIA**

**PAPER – II**

**Qawanine Advia (Principles of Unani Pharmacology)**

- Mavaleede salasa per mufassal tabsera, Neez Mabadiyate Advia ki ahmiyat aur zaroorat.
- Dawa, Ghiza, Zulkhassa, Dawae Mutlaq, Ghizae Mutlaq, Dawae Ghizaie aur Ghizae Dawaie per tafseeli maloomat.
- Mizaje Advia, Darjate Advia aur inke taayyun ka tahqeeqi jaiza.
- Ghair maroof Advia ki makhsos imtiyazi khusoosiyat.
- Ghair maroof Advia ki maloomat ke zaraye, neez ghair maroof Advia ke tajarbat per tafseeli maloomat.
- Mukhtalif nizamhaaye jismani per Advia ke asrat.
- Tibbe Unani mein muravvaj Ashkaale Advia per jadeed nuqtae nazar se tabsera.
- Tibbe Unani mein Abdale Advia ki ahmiyat, zaroorat aur muravvaj Abdale Advia ka tahqeeqi jaiza.
- Advia mufrada ki muddate hayat, unke usool aur tahaffuz ke bare mein tafseeli maloomat.
- Masalike Advia aur zaroori tajdeed.
- Advia ki muzir kaifiyat aur Islah ka tahqeeqi jaiza.
- Tibbi Akhlaqiyat wa hidayat barai Tahqeeqat

**PAPER – III**

**Ilmul wasful Aqaaqeer (Pharmacognosy)**

- Introduction to pharmacognosy and its scope
- Pharmacognostical methods used to establish the identity and purity of herbal drugs
- Plant Nomenclature.
- Classification of Plant Kingdom.
- Cultivation of medicinal plants, Good agricultural and collection practices, Introduction to plant tissue culture
- Characteristic features of certain medicinally useful families
  - (a) Solanaecae (*Datura stramonium, Solanum nigrum.*)
  - (b) Apocynaceae (*Rauwolfia serpentina, Wrightia tinctoria*)
  - (c) Papaveraceae (*Papaver somniferum*)
  - (d) Liliaceae (*Colchicum luteum, Aloe vera.*)
  - (e) Leguminosae (*Trigonella foenum, Acacia arabica*)
  - (f) Umbellifercae (*Coriandrum sativum, Ferula asafoetida*)
  - (g) Malvecae (*Hibiscus rosa sinensis, Althaea officinalis*)
  - (h) Euphorbiaceae (*Ricinus cummunis.*)

- (i) Compositae (*Artemisia absinthium, Chicorium intybus*)
- (j) Asclepiadaceae (*Calotropis procera*)

- Drying and storage of drugs.
- Deterioration of stored drugs.
- Identification of crude drugs
  - (a) Morphological Studies
  - (b) Anatomical Studies
    - (i) Microtomy
    - (ii) Powder study
    - (iii) Quantitative Microscopy
      - (a) Stomatal no, Stomatal index, Pallisade ratio, Vein islet no.
- **Alkaloids and alkaloid containing drugs**
  - (a) Kuchla
  - (b) Suranjan
  - (c) Opium
  - (d) Ephedra
  - (e) Datura
  - (f) Qinnab
  - (g) Asrol
- **Glycosides and glycoside containing drugs**
  - (a) Revand
  - (b) Senna
  - (c) Sibr
  - (d) Aslussoos
  - (e) Digitalis
  - (f) Ushba
- **Volatile oil containing drugs**
  - (a) Badyan
  - (b) Rehan
  - (c) Zeera
  - (d) Darchini
  - (e) AnisoonAniseed
  - (f) Ustokhuddus
  - (g) Jaiphal
- **Flavonoid containing drugs**
  - (a) Aftimoon
  - (b) Mako
  - (c) Kasni
  - (d) Kabab chini
- **Fixed oil containing drugs**
  - (b) Badam
  - (c) Zatoon
  - (d) Kunjad
  - (e) Baidinjeer
  - (f) Katan

- (g) Chalmogra
- **Tannin containing drugs**
  - (a) Amla
  - (b) Mazoo
  - (c) Kakrasinghi
  - (d) Main khurd
- **Drugs of animal origin**
  - (a) Sadaf
  - (b) Marwareed
  - (c) Marjan
  - (d) Saresham Mahi
  - (e) Jund bedastar

#### **Practicals**

- Organoleptic identification of ten medicinal plants
- Powder identification of Sena, Aslossoos, Kishnez, Revand
- Morphological identification of five families
- Anatomical characteristics and dissection of root and stem of two medicinal plants
- Floral formula and floral diagram of five medicinal plants
- Determination of Alkaloids, Phenols, steroids, terpenes, glycoside, saponins, proteins, tannins, reducing sugar, non reducing sugar, Xanthoproteins, resins, vitamins, crude fibres, phosphate, iron, sulphur, calcium, aluminium, nitrogen.
- Tests for microbial contamination.

### **PAPER - IV**

#### **General, Systemic and Experimental Pharmacology**

##### **General Pharmacology**

- **Introduction**
  - (a) Pharmacognosy
  - (b) Pharmacy
  - (c) Pharmacokinetics
  - (d) Pharmacodynamics
  - (e) Therapeutics
  - (f) Toxicology
  - (g) Clinical pharmacology
  - (h) Pharmaceutics
  - (i) Clinical pharmacology
- **Routes of Administration**
- **Pharmacokinetics**
  - (a) Absorption of drugs
  - (b) Distribution of drugs
  - (c) Metabolism of drugs

- (d) Excretion of drugs
- (e) Bioavailability and half life of drugs
- (f) Dose response curve, LD<sub>50</sub>, ED<sub>50</sub>
- **Pharmacodynamics**
  - (a) Receptor theory of drug action
  - (b) Receptor Families
  - (c) Receptor – ligand Binding
  - (d) Factors modifying drug response
- **Pharmaco-vigilance**
  - Drug interactions
  - Adverse Drug Reaction
  - Reporting and monitoring of ADR
- **Principles of Toxicology**

### Systemic Pharmacology

#### **Autonomic Nervous System,**

A Review of ANS and neurohumoral transmission

Sympathomimetic Drugs

Sympatholytic Drugs

Parasympathomimetic Drugs

Parasympatholytic Drugs

Anticholinestrase Drugs

#### **Central Nervous System**

Sedative and Hypnotics

Opioids

Anticonvulsants

Antipsychotics

#### **Cardiovascular System**

Antihypertensive Drugs

Drugs used in Heart Failure

Anti anginal Drugs

#### **Miscellaneous**

Diuretics

NSAID

Drugs used in Peptic ulcer

Antidiabetic Drugs

Corticosteroids

#### **Experimental Pharmacology**

Common laboratory animals, characteristics and experimental uses

Factors affecting drug response

Drug administration (Oral and IV) and withdraw of blood samples

Dose conversion factors

Vehicles for animal administration

Isolated tissue preparation

Methods of rendering the animals unconscious

Anaesthetics used in lab animals

Basic equipment

Physiological salt solutions  
Standard drugs and chemicals

**Bioassay**

- (a) Scope
- (b) Principles
- (c) Designing
- (d) Types

**Drugs Screening**

- (a) Simple
- (b) Programmed
- (c) Blind Screening

**Neuro-pharmacological Studies**

- (a) Irwin's profile
- (b) Smith's profile

**Toxicity Studies**

- (a) Acute
- (b) Sub acute
- (c) Chronic studies

Anticonvulsant activity

Analgesic, Antipyretic, Anti-inflammatory and Anti-ulcer activities

Action on cardiovascular system

Hepatoprotective, Nephroprotective Activities

Hypoglycemic and Hypolipidemic Activities

**PRACTICALS**

**In-vivo Experiments**

- To study the general pharmacology and gross behaviour in mice and rats.
- To study the effects of pentobarbital Induced hypnosis in mice.
- To study the effects of chlorpromazine on the locomotor activity using photoactometer in rats.
- To study the analgesic activity of morphine using tail flick method by analgesiometer in mice.
- To study the analgesic activity of morphine using hot plate method in mice.
- To study the analgesic activity of aspirin using acetic acid induced writhing test in rats.
- To study the anti-inflammatory activity of aspirin / indomethacin against carrageenin induced paw edema in mice.
- To study the anticonvulsant activity of phenytoin using convulsimeter in rats.
- To study the antisecretory and ulcer protective effect of H<sub>2</sub> -Blockers in rats.

**In-vitro Experiments (on isolated preparations)**

- To record a concentration response curve (CRC) of acetylcholine using ileum preparation in rats.
- To record the effect of physostigmine (Eserine) on the CRC of acetylcholine using ileum preparation in rats.
- To record the blocking effect of atropine sulphate on the CRC of acetylcholine using ileum preparation in rats.