

SYLLABUS FOR ENTRANCE EXAMINATION OF PhD (ILMUL ADVIA)

2016-17

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

Qawanine Advia (Principles of Unani Pharmacology)

- Mavaleedesalasa per mufassal tabsera, Neez Mabadiyate Advia kiahmiyataurzaroorat.
- Dawa, Ghiza, Zulkhassa, Dawae Mutlaq, Ghizae Mutlaq, Dawae Ghizaie aur Ghizae Dawaie per tafseelimaloomat.
- Mizaje Advia, Darjate Advia aurinketaayyunkatah qeeqijaiza.
- Ghairmaroof Advia kimakhsoosimtiyazikhusoosiyat.
- Ghairmaroof Advia kimaloomatkezaraye, neez ghairmaroof Advia ketajarbat per tafseelimaloomat.
- Mukhtalif nizama haaye jismani per Advia keasrat.
- Tibbe Unanime in muravvaj Ashkaale Advia per jadeed nuqta enazar se tabsera.
- Tibbe Unanime in Abdale Advia kiahmiyat, zaroorataur muravvaj Abdale Advia katah qeeqijaiza.
- Advia mufrad kimuddate hayat, unke usool aur tahaffuz ke bare mein tafseelimaloomat.
- Masalike Advia aur zarooritajdeed.
- Advia kimuzirkafiyataur Islah katah qeeqijaiza.
- Tibbi Akhlaqiyat wahidayat barai Tahqeeqat

Ilmulwasful Aqaqeer (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) Umbelliferae (Coriandrum sativum, Ferula asafoetida)
- (g) Malveaceae (Hibiscus rosasinensis, Althaea officinalis)
- (h) Euphorbiaceae (*Ricinus communis*.)
- (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, Palisade 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) Kababchini

- **Fixed oil containing drugs**

- (a) Badam
- (b) Zatoon
- (c) Kunjad
- (d) Baidinjeer
- (e) Katan
- (f) Chalmogra

- **Tannin containing drugs**

- (a) Amla
- (b) Mazoo
- (c) Kakrasinghi
- (d) Main khurd

- **Drugs of animal origin**

- (a) Sadaf
- (b) Marwareed
- (c) Marjan
- (d) SareshamMahi
- (e) Jundbedastar

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, LD₅₀, ED₅₀

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

Advia Mufrada

Shinakhat, Khawaswa Taseerate Advia

Description of Unani single drugs with Scientific names, Mutaradifataurunki Mahiyat, Mizaj, Afaalwa Khawas, Murakkabat, Istemal, Affale Khusoosi, Muzir, Musleh, Badal, Miqdar, Khurakwa Kimiavi Ajza used in following systems

- i. Adviamutalliqa Nizame Asabwa Dimagh.
- ii. Adviamutalliqa Nizame Tanaffus.
- iii. Adviamutalliqa Qalbwa Daurane Khoon.
- iv. Adviamutalliqa Nizame Baul.
- v. Adviamutalliqa Nizame Tavleedwa Tanasul.
- vi. Adviamutalliqa Jildwa Jarahat.
- vii. Adviamutalliqa Ain, Uzn, Anafwa Halaq.
- viii. Adviamutalliqa Amraze Aamma,
- ix. Advia Mutafarriqa.
- x. Ghair Maroof/ Matrook Unani Advia
- xi. Bisehri, Chiksini, Sahdevi, Habbul-Quilquil, Huma, Khillah, Azriyunetc

Advia Murakkaba Wa Dawasazi (Unani Compound Drugs and Pharmacy)

1. Qawanine Tarkeebe Dawa
2. Importance of compounding of drugs.
3. Importance & Critical assessment of renowned *Qarabadeen*.
4. Ashkale Advia Murakkabaka Scientific Jaiza aur in meintajdeedkizaroorat.
5. Murakkabat kemizajkataayyun
6. Standardization of Compound formulations and their quality control measures.
7. Murakkabat mukhtalif badninizam se mutalliq: -
 - Amraze Raas
 - Amraze Qadif
 - Amraze Medawa Amaa
 - Amraze Kabid, Mirarahwa Tihal
 - Amraze Kulyawa Masana
 - Amraze Makhsoosa – Mardana, Zananawa Atfal
 - Amraze Aamma
 - Hummiyat
 - Jarahiya
 - Amraze jild

Dawasazi

1. Unani Dawasazi, historical background and significance in the present context.
2. Istelahate Dawasazi aurunki Efadiyat. Taqtee, Daqwa Raz, Burd, Sahaq, Zikhl, Tasweed, Tarweeq, Tasfiya, Tarsheeh, Taqteer, Irgaha, Izalaelaun, Tajfeef, Tabkheer, Tas'eed, Tarseeb, Asar, Tahleel, Azabat, Tabakh, Naqah, Tajeer, Iqla, Tabloor, Taqsheer, Ihrqaqwa Taklis, Tahmeez, Taqliya, Tashwiya, Gasal, Tadheen, Takhmeerwa Taffun, Itfa.
3. Aamale Dawasazi, application and significance.
4. Tadbeere Advia and its scientific validation
5. Imlut Taklees, scope and scientific validation.
6. Methods of preparation and uses of various kushtajat
7. Kushtonki Meyar Bandi
8. Aamale Dawasazi auruska scientific Jaiza.
9. Control of Microbial contamination and preservation of compound medicines Sterile Processing, Contamination Control
10. Chand Aghziaki Tayyariaurunki Efadiyat. Mauljuban, Maushshaeer and its types, Ma'ulasl, Ma'ul'lahem.
11. Dispensing Procedures and related guidelines.
12. Drug and Cosmetics Act

Standardisation of Unani Drugs

- Aims and Objectives of Standardisation
- Standardisation of Herbal, Mineral, and Animal origin drugs
- Physical Standardisation
 - (a) Moisture content

- (b) Viscosity
- (c) Melting point
- (d) Solubility
- (e) Optical rotation
- (f) Refractive index
- (g) Ash values
- (h) Extractive values
- (i) pH value

- **Chemical standardisation**

- (a) Quantitative Chemical Tests.
 - (i) Acid value
 - (ii) Ester value
 - (iii) Peroxide value
 - (iv) Iodine value
 - (v) Hydroxyl value
 - (vi) Saponification value
- (b) Qualitative Chemical Tests for:
 - (i) Alkaloids
 - (ii) Carbohydrates
 - (iii) Glycosides Saponins Phenols Resins
 - (iv) Esters
 - (v) Alcohol
 - (vi) Acids
 - (vii) Volatile oil
 - (viii) Fats
 - (ix) Fixed oils

Analytical methods in drug analysis

- (a) Sublimation
- (b) Distillation
- (c) Methods of separation and isolation
- (d) Chromatography
 - (i) Types, aims and objectives.
 - (ii) Thin layer chromatography
 - (iii) Paper Chromatography
 - (iv) Column Chromatography.
 - (v) Liquid Chromatography.
 - (vi) Gas Chromatography.
- (e) HPLC, HPTLC, Mass Spectroscopy,
- (f) General description of electrophoresis
- (g) Spectroscopy: UV and flame photometry, Atomic Absorption Spectroscopy

- **Quality control of single drugs of Unani Medicine**

- (a) Adulteration of drugs
- (b) Aflatoxin contamination

- (c) Factors affecting quality of drugs
- (d) Aflotoxins
- (e) Heavy Metals
- (f) GMP, GLP, SOP
- **Standardisation of compound formulations**
 - (a) (Arq, Majoon, Safoof, Qurs and other dosage forms)
 - (a) Process standardisation.
 - (b) Product standardisation.
 - (c) Stability studies and Shelf life