

**CENTRAL COUNCIL OF INDIAN MEDICINE**  
**NEW DELHI**

**SYLLABUS OF**  
**MAHIRE TIB-TASHREEHUL BADAN**  
**(M.S. ANATOMY)**

**(MASTER OF SURGERY-ANATOMY)**

**3 YEARS DEGREE COURSE**



**SYLLABUS OF**  
**MAHIRE TIB-TASHREEHUL BADAN**  
**(M.S. ANATOMY)**

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## **Preliminary Examination**

### **Paper –I**

#### **Part-A**

### **Research Methodology and Biostatistics**

**Time: 3 hours**

**Maximum Mark: 100**  
**Minimum passing Mark: 50**

#### **Research Methodology**

##### **1. Types of research**

- a) Literary research
- b) Clinical research
- c) Experimental research
- d) Observation and field studies

##### **2. Trends and possibilities of R&D of Unani drugs**

##### **3. Research problems**

- a) Definition
- b) Selection and sources of research problems

##### **4. Hypothesis**

Types: Null and alternate hypothesis

##### **5. Research designs**

Types of research designs

##### **6. Controls in research designs**

- a) Selection criteria
- b) Placebo and plain control
- c) Randomization
- d) Balancing and matching

##### **7. Factors effecting research results**

## **8. Tools and techniques in research**

- a) Interview, questionnaire, inventories, scales
- b) Rating scales

## **9. Computer programme used in research**

- a) Minitab
- b) SPSS

## **10. Protocols for research and report writing**

- a) Protocols for experimental, clinical and community based research
- b) Writing research report
- c) References in research report
  - Books
  - Journals
  - Compendia
  - Bulletins
  - WHO Report
  - Internet sites

## **11. Guide lines for research**

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

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## Part - B

### Bio-Statistics

#### Scope and utility of Biostatistics

##### 1. Descriptive statistics:-

###### a) Analysis of Data:

- Data collection, tabulation and presentation of data
- Measure of central tendency—Mean, Median and Mode
- Measures of dispersion: Range, quartile deviation, standard deviation

###### b) Probability:

- Definition and laws of probability
- Types of probability distribution
- NPC and its application size
- Randomized samples

###### c) Sampling:

- Types and sample size
- Randomized sampling

##### 2. Inferential statistics:-

###### a) Correlation and linear regression:

- Karl Pearson correlation coefficient
- Linear regression equations

###### b) Test of significance:

- 't' test
- 'z' test

###### c) Test of variance:

- ANOVA one way
- ANOVA two way
- $X^2$

**d) Non-parametric tests**

- Median test, Mann-Whitney U test
- Kruskal-Wallis test, Fried test

**3. Vital statistics**

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

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## **Preliminary Examination**

### **Paper-II**

#### **Part A**

### **Tashreehul Badan se muta'alliq Tibbe Unani ke bunyadi usoolo ka etlaaqi nazariya**

**Time: 3 Hours**

**Maximum Mark: 100**  
**Minimum Passing Marks: 50**

- 1. Concept of Anasir e arba- regarding formation of Human body**
- 2. Tashreehi Istlaahaat (Anatomical terminology)**
- 3. Concept of Aaza according to fundamentals of Unani Tib**
  - a) Detail study of composition of Aaza (Tarkeeb e Aaza) with reference to Anasir arba.
  - b) Definition and classification of Aaza (Organs).
  - c) Description of Aaza-e- Mufridah or Baseetah (Simple organs) and Aza-e- Murakkibah (Compound organs) with recent advancement in Anatomy (Tashreehul Badan).

#### **Description of Aaza-e- Mufridah or Baseetah (Simple organs)**

1. Izaam (bones).
2. Ghazarif (cartilages) deferent types and their site with importance.
3. Rebatat (ligaments).e.g. rebatat-e-mafasil,etc.
4. Awtar (tendons).
5. Aghshiya (membranes) e.g. peritoneum, pleura, pericardium, meninges etc.
6. Shahm (fat) e.g. omentum, mesentery, paranephric pad of fat.
7. Lahm (muscles) skeletal muscles, cardiac muscles, smooth muscles.
8. A'asab (nerves) spinal and cranial nerves.

**Aza-e-Murakkibah**  
**(Compound organs)**

**1. Quwa-e-Tabiyah (physical organs)**

❖ These organs further divided into:-

(i) **Aaza-e- ghaza-** which act into the aliments for the preservation of individual.

(ii) **Aaza-e-tanasul-** which function for the preservation of species.

(i) **Aaza-e- Ghiza(nutritive organs) are two types:-**

a) **Aaza-e- hazm(digestive organs).**

b) **Aaza-e-Nafdh (excretory organs).**

**a) Aaza-e-hazm(digestive organs), these are:-**

- Fam(oral cavity),
- Asnan(teeth),
- Ghudad-e-lu'abiyah(salivary glands),
- Halaq(pharynx),
- Mari(oesophagus),
- Mi'dah(stomach),
- Am'a(intestine),
- Kabid(liver),
- Mararah(gall bladder),
- Banqaras(pancreas).

**b) Aaza-e-Nafdh (excretory organs), these are:-**

- Kuliyatain (kidneys),
- Halibain (ureters),
- Masanah (urinary bladder),
- Majra-e-baul (urethra).

(ii) **A'za-e-Tanasul (genital organs) are two types:-**

a) Male genital organs

b) Female genital organs

**a) Male genital organs these are:-**

- Khusiyatain (testes),
- Aghdidus(epididymis),
- Majra-e-mani(vas deferens),



- Aw'iyah-e-mani(seminal vesicle),
- Qazif-e-mani(ejaculatory duct),
- Zakar or qazeeb(penis),
- Ghudda-e-mazi(prostate gland),
- Ghudda-e-basli ihli(bulbo urethral glands).

**b) Female genital organs these are:-**

- Khussyah-e-raham(ovary),
- Raham(uterus),
- Qazif-e-rahman(uterine tube),
- Mahbal(vagina),
- Farj(vulva)

**2. Aaza-e-Nafsaniyah (Mental organs).**

❖ The compound organs pertaining to quwat –e- nafsaniyahare known as a'za-e-nafsaniyah. These organs are classified into:-

(i) **Markazi(central)**

(ii)**Muhiti(peripheral) aaza-e- nafsaniyah.**

**(i) Markazi(central) Aaza-e-nafsaniyah these are:-**

- Dimagh(brain),
- Dimagh-e-muqaddam(fore brain),
- Dimagh-e-mutawassit(mid brain)
- Dimagh-e-mu'akhkhar(hind brain),
- Nukha (spinal cord).

**(ii)Muhiti (peripheral) Aaza-e-nafsaniyah these are:-**

- Jumjumi a'sab (cranial nerves),
- Nukha'i a'sab (spinal nerves),
- Asbi aqa'id (nerve ganglia) 'ain (eye),
- Uzn (ear), anaf (nose),
- Lisan (tongue),
- Jild (skin).

**3. Aaza-e-haywaniyah (vital organs)**

- ❖ The organs pertaining to circulation of blood and respiration are known as Aaza-e-haywaniah these are:-
- Qalb (heart),
  - Sharayin (arteries),
  - Awridah (veins),
  - Urooq sha'riyah (capillaries),
  - Urooq-e- limfavia (lymphatic vessels) .
  - Hanjarah (larynx),
  - Qasbat-ur-riya (trachea),
  - Shu'batain-ur-riya (bronchii),
  - Urooq-e-khashinah (bronchioles),
  - Ria'tain (lungs),
  - Sadr (thorax),
  - Aghshiyah-e-riya (pleurae),
  - Hijab-e-hajiz (diaphragm)

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## Part B

1. Tarikh -e-Ilm-e- Tashreeh-ul- Badan (History of Anatomy).
2. Afaal tashreeh (Functional Anatomy)in relation to Unani concept
3. Ilmu mafasil (Arthology).
4. Preservation of cadaver, specimens, and embalming.

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**Preliminary Examination**

**Practical and viva voce**

**Time: 3 Hours**

**Maximum Mark: 100**

**Minimum Passing Marks: 50**

**First Year Practical**

1. Aaza (Organs) Gross anatomy:
2. Embalming and Preservation of cadavers.
3. Preparation of tanks for preserving bodies
4. Dissection of cadaver/SynDaver /audio video visual aid
5. Window dissection of important regions
6. Preparation of specimens for museum with display

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## **Final Examination**

### **Paper –I**

#### **Tashreeh-e-Janeeni, Naseeji wa Ilmul Nasl** **(Embryology, Microscopic Anatomy and Genetics)**

**Time: 3 Hours**

**Maximum Mark: 100**

**Minimum Passing Marks: 50**

#### **Section – A**

##### **1. Ilmul Janeen (Developmental Anatomy/Embryology):**

- a) Ilmul Janeen Umoomi (General Embryology)
- b) Ilmul Janeen Nizami (Systemic Embryology), Congenital Abnormalities with teratogenesis.
- c) Khalqi naqayes ki Munafeul Azai ta'alluq (Physiological correlations of congenital anomalies).

#### **Section – B**

##### **1. Hayatiyati Khalyah (Cell Biology), Ilm-e-Nasiji , Kimiyawi –wa-Ilmul Nasl (Histology Histochemistry, Genetics):**

- a) **Cytoplasm:-** Cytoplasmic Matrix, Cell Membrane, Cell Organelles, Cytoskeleton, Cell Inclusions, Cilia and Flagella.
- b) Collection, Maintenance and Application of Stem Cells, Cryobanking and Principles of Organ Donation from recently dead bodies.
- c) **Nawat(Nucleus):-** Nuclear Envelope, Nuclear Matrix, DNA and other components of Chromatin, Protein Synthesis, Nucleolus, Nuclear Changes Indicating Cell Death.
- d) **Cell cycle:-** Mitosis, Meiosis, Cell Renewal.
- e) Khalyati Tafreeq aur Takasur (Cellular Differentiation and Proliferation).
- f) Jism ki Khurdbeeni Saakht (Microscopic structure of the body):

- g) **Jismani Nezan wa a'aza (The systems/organs of body):-** Cellular Organization, Light and Electron Microscopic Features, Structure - Function Correlations, and Cellular Organization.
- h) **Ajsam-e-Malonah (Human Chromosomes):-** Structure, Number and classification, methods of chromosome preparation banding patterns. Chromosome abnormalities,
- i) Autosomal and Sex Chromosomal Abnormalities Syndromes, Molecular and Cytogenetics.
- j) **Single Gene Pattern Inheritance:-** Autosomal and Sex Chromosomal Pattern of Inheritance, Intermediate Pattern and Multiple Alleles, Mutations, Non-Mendelian Inheritance, Mitochondrial Inheritance, Genome Imprinting, Parental Disomy.
- k) **Multifactorial Pattern of Inheritance:-** Criteria for multi factorial inheritance, Teratology, Structure gene, Molecular Screening, Cancer Genetics -Haematological malignancies, Pharmacogenetics.
- l) **Reproduction Genetics:-** Male and Female Infertility, Assisted reproduction, Preimplantation genetics, Prenatal diagnosis, Genetic Counselling and Ethics of Genetics.
- m) Principles of Gene therapy and its applied knowledge.
- n) Immune system and cell types involved in defence mechanism clinical significance of major histocompatibility complex, Immunohistochemical techniques.

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## Final Examination

### Paper-II

**Time: 3 Hours**

**Maximum Mark: 100**  
**Minimum Passing Marks: 50**

### Tashreeh-e- A'asabi (Neuroanatomy)

1. Dimagh (Brain ),
2. Nizam-e- A'asab ki Baleedgi (Development of the Nervous System)
3. Asabi Khalyat wa Neuragliya (Neuron and Neuroglia)
4. Tariq-e- Shammi wa Basari ( Olfactory and optic pathways)
5. Tariq-e- Dehlizi Qauqa'i wa Zawaqa (Cochleovestibular and Gustatory Pathways)
6. Tariq-e- Harqi wa Hissi (Motor and Sensory Pathways)
7. Tariq-e- Markazi Ghair Eradi ( Central Autonomic Pathways)
8. Nizaminukhami wa Sarir-e- Tahtani ( Hypothalamo-Hypophyseal System)
9. Limbic system, Qaeid-e- Nawati (Basal Nuclei)
10. Nizam-e-Shabki (Reticular System)
11. Dimagh wa Nukha ka Tashreehi Mustaraz Trash (Cross Sectional anatomy of brain and Spinal cord)
12. Asab-e- Leefi (Nerve fibres), Zafiraat-e- Asabi (Nerve Plexuses),
13. Majmo-e- Sareri (Thalamic complex)
14. Nizam-e-Batani (Ventricular system).
15. Nizam-e- A'asab ka Tafsili Muta'ala Itlaaqi wa Saakht ke hisaab se (Detailed structure of the Central Nervous System and its applied aspect).

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**Final Examination**

**Paper –III**

**Time: 3 Hours**

**Maximum Mark: 100**

**Minimum Passing Marks: 50**

**Tashreeh-e-Satahi wa Shoaai**  
**(Surface and Radio Anatomy)**

1. Badan ke Mukhtalif Raqbaat ki Tashreeh-e-Sathi(Surface marking of all regions of the body).
2. Interpretation of normal radiographs of the body including special contrast procedures and radio imaging.

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**Final Examination**

**Paper- IV**

**Time: 3 Hours**

**Maximum Mark: 100**

**Minimum Passing Marks: 50**

**Tashreeh-e-Itlaaqi wa Jadeed Tehqiqat (Applied Human Anatomy and recent advances) wa Tashreeh-e-Qanooni (Forensic Anatomy)**

1. Clinical correlations of structures and functions of human body. Anatomical basis and explanations for clinical problems.
2. Applications of knowledge of developmental, Structural (Microscopy), Neuroanatomy to Comprehend Deviations from normal.
3. Recent advances in medical sciences which facilitate comprehension of structure function correlations and applications in clinical problem solving
4. Tashreeh-e- Qanooni (Forensic Anatomy)
5. Badni Ezaam ki Shanakht (Identification of Human Bones) from their remains and Jins, Umar, Qad-o-Qamat ka Ta'ayyuntashreeh ka Itlaq Tibbi Qanooni ke Liye (Determination of Sex, Age, and Height for Medico Legal application of Anatomy).

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**Final Examination**

**Final Year Practical**

**Time: 3 Hours**

**Maximum Mark: 100**

**Minimum Passing Marks: 50**

1. Microteaching of a short topic to assess teaching skills.
2. A short synopsis of the thesis work should be presented by the post graduate student.
3. Grand viva including Gross anatomy, cross sectional anatomy, radiological Anatomy, Surface Anatomy, Embryology.
4. Practical and Oral/Viva-Voce Examination- Practical Examination to be organized as per details given below:
  - Histology spotting and Histological techniques.
  - Surface Marking.
  - Preparation and preservation of bones/ skeleton as assigned by the faculty.

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### **Recommended list of Text Books and Journals**

1. Kamilussanah - Abul Hasan Ali Ibne Abbas Majoosi.
2. Firdousul Hikmat -Ali ibn Sahl Rabban Tabri.
3. Kitabul Mansoori, Abu Bakar Mohd Bin Zakariya Razi
4. Al Qanoon Fit Tib- Sheikh bu Ali ibne Sina,
5. Kitabul Kulliyat - Ibn-e Rushd
6. Takweemul Abdan- Ibn-e Jazla
7. Second and Third Maqala- Ibnul Qaf
8. Kitabul Kifaya -Abdul Latif Baghdadi
9. Kitabul Janeen - Abdul Latif Baghdadi
- 10.Kitabul Azal- Abdul Latif Baghdadi
- 11.Zakhira-e- Khawarizm Shahi-Ismail Jurjani
- 12.Tashreeh-e- Sageer- Hakeem Kabiruddin
- 13.Tashreeh-e- Kabeer- Hakeem Kabbeeruddin
- 14.Kulliyat-e- Asari -Prof Syed Ishtiaq Ahmad
- 15.A Text Book on Kulliya-e- Umoor –e – Taiyah -Prof Iqtidarul Hasan Zaidi.
- 16.Tashreehul Ezaam - Dr. Shabbir Ahmad.
- 17.Tashreehul Azlaat - Dr. Shabbir Ahmad
- 18.Ishrah- Hakeem Syed Kamaluddin Husain Hamdani
- 19.Tashreeh-ul-Ahsha- Hakeem Mohd Ahmad Lari

### **Gross Anatomy:-**

1. Susan Strandring, Gray's Anatomy, The anatomical basis of clinical practice, Churchill Livingstone Elsevier.
2. Dutta A.K, Human Anatomy vol. I-III, Current Publisher.
3. Dutta A.K, Principle of General Anatomy, Current Publisher.
4. Romanes, Cunningham's Manual of Practical Anatomy vol. I-III, Oxford.
5. Keith and Moore Clinical Oriented Anatomy, Lippincot Williams and Wilkins.
6. R.S Snell. Clinical Anatomy by regions, Lippincot Williams and Wilkins.
7. J.V. Basmajin, Grant's Method of Anatomy, Williams and Wilkins.
8. R.J. Last, Anatomy Regional and Applied, Churchill Livingston.
9. Lee Mc Gregar, Surgical Anatomy, K.M. Varghese.

- 10.A.G. R Deckeg, D.J du Pless Lee. Mc Gregor's Synopsis of Surgical Anatomy, Varghese Publishing House.
- 11.Snell. Clinical anatomy by regions, Lippincotts, Williams and Wilkins.
- 12.S. Chummy Sinnatanmy, Last's Anatomy Regional and Applied,Churchill Livingston.
- 13.Hollinshed W Henry, Anatomy for surgeons. Vol. I-III Lippincotts, Williams and Wilkins.
- 14.Vishram Singh, Clinical and Surgical Anatomy, Elsevier.
- 15.Vishram Singh, Textbook of general anatomy, Elsevier.
- 16.Frank H. Netter, Atlas of Human Anatomy, Saunders Elsevier.

### **Histology:-**

1. Young B. and Heath J., Wheater's Functional Histology, Churchill Livingstone.
2. M.H. E Ross, Histology: A textbook and atlas, Williams and Wilkins.
3. V. Bharihoke, Text book of human histology, Delhi AITBS.
4. Difiore's Atlas of histology with functional co-relation.
5. Bloom and Fawcett, Text book of histology.
6. Carlton's Histology Technique.
7. E.C. Clayden, Practical of section cutting and staining.
8. D W Cormack, Ham's Histology, Lippincotts, Williams and Wilikins.
9. Bloom and Fawcett, Textbook of Histology.
- 10.Hamilton Text Book of Anatomy
- 11.James Lumely, Surface Anatomy
- 12.Surface Anatomy & Radiology ,W J Hamilton
- 13.Text Book of Anatomy ,B D Chaurasia (vol. 1-4)

### **Genetics:-**

1. J.S Thompson and Thompson, Genetics in medicine, W.B. Saunders and Co.Philadelphia, London.
2. George Fraser and Oliver Mayo, Text book of Human Genetics. Blackwell Scientific Publications London, Oxford Edinburg, Melbourne.
3. Hann Sellwerger and Jame Simpson, Chromosomes of Man, Sparsher's International Medical Publications.

### **Embryology:-**

1. Hamilton, Boyd and Mossman, Human Embryology.
2. TW Sadler, Langman's Medical Embryology, Lippincotts, Williams and Wilkins.
3. Keith L Moore and T.V.N. Persaud, The Developing Human, Saunders.
4. Rani Kumar, Text book of embryology, I.K. International New Delhi

### **Neuroanatomy:-**

1. Richard S. Snell, Clinical Neuroanatomy for Medical Students, Williams and Wilkins.
2. A. Parent, Carpenter's Human Neuroanatomy, Williams and Wilkins.
3. Vishram Singh, Clinical Neuroanatomy, Elsevier.
4. A. K. Dutta, Essentials of Neuroanatomy, Current books International.
5. John A. Kiernan, Barr's the human nervous system, Lippincott, Williams and Wilkins.

### **Radiology:-**

1. T.B. Moeller et.al. Sectional Anatomy CT and MRI Vol. I, II, III New York, Theme Stuttgart.
2. J.B. Walter et.al., Basic Atlas of Sectional Anatomy with correlated imaging, Saunders Elsevier.

### **Surface anatomy:-**

1. SP John, Lumley Editors, Surface Anatomy, The Anatomical Basis of Clinical Examination, London: Churchill Livingstone.
2. A. Halim and A.C. Das, Surface Anatomy Lucknow, ASI, KGMC.

### **Biostatistics:-**

1. INSA Guidelines for care and use of animals in Research, ICMR Publications, 2000
2. CPCSEA Guide lines, ICMR Publications, 2001
3. Ethical Guide lines for Biomedical research in human subjects, ICMR Publications, 2000

4. ICMR Guide lines on animal use, ICMR Publications,2001
5. Clinical Research in Traditional Medicine by DR. Ghazala Javed
6. David E. Matthews and Vernon T. Farewell, Using and Understanding Medical Statistics, Karger Publishers.

**Journals:-**

1. 03-05 international Journals and 02 national (all indexed) journals.

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