



GOVERNMENT OF JAMMU & KASHMIR
SHER-I-KASHMIR INSTITUTE OF MEDICAL SCIENCES
SOURA SRINAGAR

**Syllabus for Assistant Professor Posts of
the Department of Blood Transfusion &
Immunohematology,
SKIMS, SOURA.**

Blood Transfusion Medicine & Immunohematology syllabus

SECTION I: HISTORY, EVOLUTION AND ORGANIZATION OF TRANSFUSION SERVICES

History of Transfusion Medicine

- Scientific landmarks
- Discovery of blood groups
- Evolution of anticoagulants and preservatives
- Development of plastic blood bags
- Impact of World Wars
- Major milestones in transfusion medicine in India

Organization of Blood Transfusion Services

- National Blood Policy
- National and State Blood Transfusion Councils
- Blood Centre hierarchy
- Hospital Blood Centre organization
- Regional Blood Centres
- Blood Storage Centres
- Networking of Blood Centres
- Disaster preparedness and emergency blood services

Blood Centre Administration

- Human resource management
- Equipment procurement
- Financial planning
- Cost analysis of blood components
- Biomedical engineering support
- Information systems management

SECTION II: BASIC HEMATOLOGY FOR TRANSFUSION MEDICINE

Hematopoiesis

- Stem cell biology
- Bone marrow microenvironment
- Regulation of hematopoiesis

Red Blood Cells

- Erythropoiesis
- Membrane physiology
- RBC metabolism
- Hemoglobin synthesis, structure, and function
- Iron metabolism
- Bilirubin metabolism
- RBC survival and senescence

White Blood Cells

- Granulocytes
- Monocytes and macrophages
- Lymphocytes
- Functional immunology of leukocytes

Platelets

- Thrombopoiesis
- Platelet structure and function
- Platelet kinetics
- Reticulated platelets

Hemostasis

- Primary hemostasis
- Secondary hemostasis
- Coagulation cascade
- Natural anticoagulants
- Fibrinolysis
- Thromboelastography
- Platelet aggregation studies

Hemodynamics

- Blood volume regulation
- Shock physiology
- Oxygen transport

SECTION III: IMMUNOLOGY, IMMUNOGENETICS AND TRANSPLANT IMMUNOLOGY

Basic Immunology

- Components of the immune system
- Innate immunity
- Adaptive immunity
- Antigens and epitopes
- Immunoglobulin structure and classes
- Antigen-antibody interactions Agglutination, Hemolysis, Neutralization, Precipitation
- Complement system
- Cytokines and chemokines
- Primary and secondary immune responses
-

Cellular Immunology

- T-cell biology
- B-cell biology
- NK cells
- Monocyte-macrophage system
- Immune regulation

Immunogenetics

- Genetics of immune response
- Population genetics
- Hybridoma technology
- Immunogenetic polymorphism

Transplantation Immunology

- Histocompatibility
- Graft rejection
- Tolerance
- Graft-versus-host disease

SECTION IV: IMMUNOHEMATOLOGY

Blood Group Genetics

- Principles of inheritance
- Molecular genetics of blood groups
- Gene regulation

ABO Blood Group System

- Genetics and biochemistry
- ABH antigens
- Secretor status

- Subgroups of A and AB
- ABO antibodies
- Bombay and para-Bombay phenotypes
- Practical aspects of ABO grouping
- ABO typing techniques
- Molecular ABO typing
- Hemolysis
- Polyagglutination
- Mixed field agglutination
- Acquired B phenomenon
- Resolution of discrepancies

Rh Blood Group System

- Clinical significance
- Discovery of Rh system
- Inheritance, Rh genes
- Rh phenotype and genotype
- Nomenclature Fisher-Race, Wiener, Rosenfield and ISBT
- Rh antigens
- Rh membrane complex
- Variants of D Antigen- weak D, partial D
- Del phenotype
- Rh-null syndrome
- Rh-mod phenotype
- Rh antibodies
- Reagents for Rh typing
- Rh typing techniques
- Rh typing Problems and Resolution

Other Blood Group Systems

- Importance of Other blood group system
- Lewis system
- MNS system
- P system
- Kell system
- Duffy system
- Kidd system
- Lutheran system
- Ii blood group system
- Other minor blood group systems Summary of characteristics
- High-frequency antigens
- Low-frequency antigens
- Blood groups and disease associations

Human Platelet and Neutrophil Antigens

- HPA systems
- HNA systems
- Clinical significance

SECTION V: IMMUNOHEMATOLOGY LABORATORY TECHNIQUES

Antiglobulin Tests

- Principle
- Applications of Antiglobulin test
- DAT
- IAT
- AHG reagents
- Control cells
- Test Techniques: Saline, Albumin, Enzyme techniques, PEG methods, LISS methods, Gel card technology, Solid phase testing, Microplate technology, Automated platforms
- Factors affecting sensitivity of Antiglobulin test
- Sources of error

Antibody Investigation

- blood group system Panel interpretation
- Dosage effect
- Multiple antibodies
- Antibody titration

Advanced Techniques

- Elution methods
- Adsorption methods
- Auto-adsorption
- Allo-adsorption
- ZZAP treatment
- Chloroquine dissociation
- Lectin studies
- Saliva studies

Molecular Immunohematology

- Blood group genotyping
- Molecular blood grouping
- Next-generation sequencing

- Genotype-matched transfusion

SECTION VI: BLOOD DONOR MANAGEMENT

Donor Recruitment

- Voluntary donation
- Repeat donor retention
- Rare donor programmes
- Donor motivation
- Community awareness

Donor Selection

- Eligibility criteria
- Medical assessment
- Deferral criteria
- Donor questionnaire
- Counseling

Blood Collection

- Venepuncture techniques
- Blood collection systems
- Anticoagulants and preservatives
- Blood collection camps
- Special donations

Donor Reactions

- Classification
- Vasovagal reactions
- Hematoma
- Nerve injury
- Citrate toxicity
- Donor hemovigilance

Seroreactive Donors

- Notification
- Counseling
- Referral
- Look-back procedures

SECTION VII: BLOOD COMPONENT PREPARATION, STORAGE AND QUALITY CONTROL

Component Preparation

- Principles of component therapy
- Centrifugation principles
- PRP method
- Buffy coat method
- Automated extraction

Red Cell Components

- PRBC
- Leukoreduced RBC
- Washed RBC
- Irradiated RBC
- Frozen RBC

Platelet Components

- Random donor platelets
- Single donor platelets
- Platelet additive solutions

Plasma Components

- FFP
- FP24
- Cryoprecipitate
- Cryosupernatant

Granulocyte Components

- Preparation
- Indications
- Quality control

Storage and Preservation

- CPD
- CPDA-1
- Additive solutions
- Storage lesions
- Cryopreservation

- Transportation
- Cold chain maintenance

Quality Control

- Whole blood QC
- Component QC
- Reagent QC
- Equipment QC

SECTION VIII: Apheresis Medicine

Principles

- Centrifugation
- Membrane filtration
- Cell separation technology

Donor Apheresis

- Plateletpheresis
- Leukapheresis
- Plasmapheresis
- Double red cell collection

Therapeutic Apheresis

- Therapeutic plasma exchange
- Red cell exchange
- Leukapheresis
- Platelet depletion
- LDL apheresis
- Immunoabsorption
- Extracorporeal photopheresis

Special Areas

- Pediatric apheresis
- Anticoagulation
- Complications
- ASFA guidelines

SECTION IX: TRANSFUSION TRANSMISSIBLE INFECTIONS

Viral Infections

- HIV
- HBV
- HCV
- HEV
- HAV
- HTLV
- CMV
- EBV
- Parvovirus B19
- Viral inactivation

Bacterial Infections

- Syphilis
- Detection
- Prevention

Parasitic Infections

- Malaria
- Babesiosis
- Leishmaniasis

Emerging Pathogens

- Dengue
- Chikungunya
- Zika
- West Nile Virus
- SARS-CoV-2

Laboratory Detection

- ELISA
- CLIA
- CMIA
- NAT
- ID-NAT
- MP-NAT

Pathogen Reduction Technologies

- INTERCEPT
- Mirasol

- Theraflex

SECTION

~~SECTION~~ X: PRETRANSFUSION TESTING

- Sample identification
- Patient identification
- Blood request protocols
- ABO and Rh grouping
- Antibody screening
- Antibody identification
- Crossmatching
- Electronic crossmatch
- Gel crossmatch
- Blood issue and labeling
- Return and reissue policies

SECTION XI: CLINICAL TRANSFUSION MEDICINE

Patient Blood Management

- Principles
- Implementation

Component Therapy

- Red cells
- Platelets
- Plasma
- Cryoprecipitate

Specialty Transfusion

- Trauma
- Massive transfusion
- Obstetric hemorrhage
- Cardiac surgery
- Liver transplantation
- Renal transplantation
- ICU transfusion

Disease-Specific Transfusion

- Thalassemia
- Sickle cell disease
- AIHA
- Hemophilia
- DIC
- HIT
- G6PD deficiency

Therapeutic Phlebotomy

- Indications
- Procedures
- Monitoring

SECTION XII: TRANSFUSION REACTIONS AND HEMOVIGILANCE

Acute Reactions

- Acute hemolytic
- FNHTR
- Allergic
- Anaphylactic
- Hypotensive

Pulmonary Complications

- TRALI
- TACO

Delayed Complications

- Delayed hemolytic reactions
- Alloimmunization
- Iron overload
- PTP
- TRIM

Investigation

- Root cause analysis
- Inputability assessment
- Severity grading

Hemovigilance

- Donor vigilance
- Recipient vigilance
- National Haemovigilance Programme
- Reporting systems

SECTION XIII: FETAL, NEONATAL AND PEDIATRIC TRANSFUSION

- HDFN
- Rh alloimmunization
- ABO-HDFN
- Antenatal assessment
- Intrauterine transfusion
- Exchange transfusion
- Neonatal transfusion
- Pediatric transfusion support

SECTION XIV: STEM CELL TRANSPLANTATION AND CELLULAR THERAPY

- PBSC collection
- Bone marrow harvest
- Cord blood banking
- CD34 enumeration
- Cell processing
- Cryopreservation
- T-cell depletion
- CliniMACS
- FACS
- HSCT
- CAR-T therapy
- Gene and cellular therapies

SECTION XV: HLA AND HISTOCOMPATIBILITY

- HLA genetics
- HLA nomenclature
- HLA typing
- PCR-SSP
- PCR-SSOP
- RFLP
- Luminex
- CDC crossmatch

- Flow cytometric crossmatch
- Virtual crossmatch
- HLA antibodies
- Platelet transfusion support

SECTION XVI: PLASMA FRACTIONATION AND HEMOTHERAPEUTICS

- Plasma fractionation
- Albumin
- IVIG
- Anti-D
- PCC
- Factor VIII
- Factor IX
- Fibrinogen concentrates
- Recombinant coagulation factors
- Plasma substitutes
- Colloids
- Crystalloids

SECTION E XVII: QUALITY MANAGEMENT SYSTEMS

- Quality system essentials
- Quality assurance
- Quality control
- Validation
- Qualification
- Calibration
- CAPA
- Risk management
- Levey-Jennings charts
- Westgard rules
- Internal audit
- External audit
- EQAS
- Proficiency testing
- Accreditation standards

SECTION XVIII: REGULATORY, ETHICAL AND MEDICOLEGAL ASPECTS

- Drugs and Cosmetics Act
- Schedule F
- CDSCO regulations
- Licensing procedures

- GMP
- NABH
- NABL
- ISO 15189
- Ethics in transfusion medicine
- Informed consent
- Donor confidentiality
- Consumer Protection Act
- Medico-legal issues

SECTION XIX: BIOSAFETY, WASTE MANAGEMENT AND DISASTER MEDICINE

- Biosafety
- Universal precautions
- Occupational exposure management
- Biomedical waste management
- Blood supply during disasters
- Emergency preparedness
- Business continuity planning

SECTION XX: RESEARCH METHODOLOGY, BIostatISTICS AND ACADEMICS

- Study designs
- Clinical trials
- Systematic reviews
- Meta-analysis
- Sample size calculation
- Descriptive statistics
- Inferential statistics
- Relative risk
- Odds ratio
- P value
- Confidence intervals
- Regression analysis
- SPSS
- Scientific writing
- Thesis writing
- Research ethics
- Publication ethics
- Bibliometrics
- Impact factor
- h-index
- Citation metrics

SECTION XXI: DIGITAL TRANSFUSION MEDICINE AND FUTURE DIRECTIONS

- Blood bank information systems
- NAT Testing
- e-RaktKosh
- ISBT 128
- RFID
- Automation
- Artificial intelligence
- Machine learning
- Precision transfusion medicine
- Molecular blood grouping & diagnostics
- Genotype-Matched Transfusion
- Pathogen reduction technologies
- Artificial blood substitutes
- Personalized transfusion support
- Cell and gene therapy
- CAR-T Cell Therapy
- Regenerative medicine
- AI-based Blood Inventory Management
- Digital Blood Banking
- Precision Transfusion Medicine
- Patient Blood Management
- Regenerative Medicine



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SYLLABUS FOR THE POST OF ASSISTANT PROFESSOR IN CARDIO VASCULAR AND THORACIC SURGERY

A. CARDIAC SURGERY- GENERAL CONSIDERATIONS

1. Anatomy, Dimensions, Terminology of Cardiac chambers and Major vessels, Atrial septum, Ventricular septum, Conduction system, Cardiac valves, coronary arteries, terminology and classification of heart diseases.
2. Hypothermia, Circulatory arrest and Cardiopulmonary Bypass
Hypothermic circulatory arrest .Whole body perfusion during Cardiopulmonary Bypass Clinical methodology of Cardiopulmonary Bypass, Clinical Methodology of Hypothermic circulatory arrest and its Alternatives.
3. Special considerations after cardiac surgery
Fluid, Electrolyte, and Caloric intake, body temperature, Cardiac tamponade ,Infection, Chylothorax, Postperfusion and post cardiotomy syndrome.

B. ISCHEMIC HEART DISEASE

1. STENOTIC ARTERIOSCLEROTIC CORONARY ARTERY DISEASE
Definition, History, Morphology, Clinical features and Diagnostic criteria,
Natural history, indication for operation, Technique of operation, special features of postoperative care, Special situation and controversies
2. LEFT VENTRICULAR ANEURYSM
Definition, History, Morphology, Clinical features and Diagnostic criteria,
Natural history, Technique of operation, Special features of Postoperative Care, Results, Indications for Operation, Special Situations and Controversies
3. POSTINFARCTION VENTRICULAR SEPTAL DEFECT
Definition, History, Morphology, Clinical features and Diagnostic criteria,
Natural history, Technique of operation, Special features of Postoperative Care, Results, Indications for Operation, Special Situations and Controversies
4. MITRAL REGURGITATION FROM ISCHEMIC HEART DISEASE
Definition, History, Morphology, Clinical features and Diagnostic criteria,
Natural history, Technique of operation, Special features of Postoperative Care, Results, Indications for Operation, Special Situations and Controversies

C. ACQUIRED VALVAR HEART DISEASE

1. MITRAL VALVE DISEASE WITH OR WITHOUT TRICUSPID VALVE DISEASE
Definition, History, Morphology, Clinical features and Diagnostic criteria,
Natural history, Technique of operation, Special features of Postoperative Care, Results, Indications for Operation, Special Situations and Controversies
2. MITRAL VALVE SURGERY WITH COEXISTING TRICUSPID VALVE DISEASE
3. MITRAL VALVE SURGERY WITH COEXISTING ISCHEMIC HEART DISEASE



4. AORTIC VALVE DISEASE

Definition, History, Morphology, Clinical features and Diagnostic criteria,
Natural history, Technique of operation, Special features of Postoperative
Care, Results, Indications for Operation, Special Situations and Controversies

5. COMBINED AORTIC AND MITRAL VALVE DISEASE WITH OR WITHOUT TRICUSPID VALVE DISEASE

Definition, History, Morphology, Clinical features and Diagnostic criteria,
Natural history, Technique of operation, Special features of Postoperative
Care, Results, Indications for Operation, Special Situations and Controversies

6. TRICUSPID VALVE DISEASE

Definition, History, Morphology, Clinical features and Diagnostic criteria,
Natural history, Technique of operation, Special features of Postoperative
Care, Results, Indications for Operation, Special Situations and Controversies

7. INFECTIVE ENDOCARDITIS

Definition, History, Pathogenesis and Morphology, Clinical features and
Diagnostic criteria, Natural history, Therapy and Technique of operation,
Special features of Postoperative Care, Results, Indications for Operation,
Special Situations and Controversies

D. CARDIAC RHYTHM DISTURBANCE

Bradycardia

Tachycardia

Wolff-Parkinsons-White Syndrome

Atrial Fibrillation and Flutter

Ventricular Tachycardia and ventricular Fibrillation in Ischemic Heart Disease

Intractable Ventricular Tachycardia

E. CARDIAC TRAUMA

Penetrating Cardiac Trauma

Non-Penetrating Cardiac Trauma

F. CARDIAC TUMOR

Myxoma

Papillary Fibroelastoma

Rhabdomyoma

Fibroma

Lipoma

Pheochromocytoma

Teratoma

Sarcoma

Carcinoid Heart disease

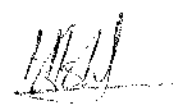
G. CARDIOMYOPATHY

Cardiomyopathy

Heart Failure

Dilated Cardiomyopathy.

Cardiac Transplantation And Mechanical Circulatory Support



Ischemic Cardiomyopathy
Hypertrophic Cardiomyopathy
Restrictive Cardiomyopathy
Arrhythmogenic Right Ventricular Dysplasia

H. CARDIAC TRANSPLANTATION

Cardiac Transplantation In Adult Without Congenital Heart Disease
Cardiac Transplantation For Congenital Heart Disease And Pediatric Patients
Heart Lung Transplantation
Mechanical Circulatory Support

I. PERICARDIAL DISEASE

Chronic Constrictive Pericarditis
Chronic effusive Pericarditis

J. DISEASE OF THE THORACIC ARTERIES AND VEIN

Acute Traumatic Aortic Disruption
Acute Aortic Dissection
Chronic Aortic And Thoracoabdominal Aortic Disease
Disease Of The Pulmonary Arteries
Acute Massive Pulmonary Embolism
Chronic Pulmonary Thromboembolic Disease
Pulmonary Artery Aneurysm
Pulmonary Artery Dissection
Pulmonary Artery Tumors
Acquired Disease Of The Systemic Veins

K. CONGENITAL HEART DISEASE

Definition, Historical Note, Morphology, Clinical Features And
Diagnostic Criteria, Natural History, Technique Of Operation, Special
Features Of Postoperative Care, Result
Atrial Septal Defect And Partial Anomalous Pulmonary Venous
Connection
Total Anomalous Pulmonary Venous Connection
Cor Triatriatum
Unroofed Coronary Sinus Syndrome
Atrioventricular Septal Defect
Ventricular Septal Defect
Congenital Sinus Of Valsalva Aneurysm And Aortico-Left
Ventricular Tunnel
Patent Ductus Arteriosus
Ventricular Septal Defect With Pulmonary Stenosis Or Atresia
Pulmonary Stenosis And Intact Ventricular Septum
Pulmonary Atresia And Intact Ventricular Septum
Tricuspid Atresia And Single-Ventricle Physiology
Ebstein Anomaly
Truncus Arteriosus
Aortopulmonary Window
Origin Of The Right Or Left Pulmonary Artery From The Ascending
Aorta
Congenital Anomalies Of The Coronary Arteries complete
Congenital Aortic Stenosis
Coarctation Of The Aorta And Interrupted Aortic Arch

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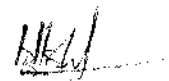
Aortic Atresia And Other Forms Of Hypoplastic Left Heart
Physiology
Congenital Mitral Valve Disease
Vascular Ring And Sling
Complete Transposition Of The Great Arteries
Double Outlet Right Ventricle
Double Outlet Left Ventricle
Congenitally Corrected Transposition Of The Great Arteries
Doble Inlet Ventricle And Atrietic Atrioventricular Valve
Anatomically Corrected Malposition Of The Great Arteries

L. GENERAL THORACIOC SURGERY

The Lung, Pleura, Diaphragm, And Chest Wall
Structure And Function Of The Chest Wall And Lungs
Anatomy Of The Thorax, Surface Anatomy Of The Thorax, Cutaneous
Innervation, Superficial Chest Wall Musculature, The Intercostal Space, The
Intercostal Muscles, Neurovascular Bundle, Intercostal Vessels, Interactions
Between The Components Of The Chest Wall During Respiration,
Embryology Of The Lung
Ultrastructure And Morphometry Of The Human Lung
Cellular And Molecular Biology Of The Lung
Surgical Anatomy Of The Lungs, Lymphatics Of The Lungs
Mechanics Of Breathing And Pulmonary Gas Exchange
Thoracic Imaging – Standard Radiographic Evaluation, Computed
Tomography, Magnetic Resonance Imaging, Radionuclide Studies Of The
Lung, Thoracic Pet Ct
Diagnostic Procedures
Laboratory Investigations In The Diagnosis Of Pulmonary Disease
Molecular Diagnostic Studies And Genomic Studies In Pulmonary Disease
Bronchoscopic Evaluation Of The Lung And Tracheobronchial Tree
Ultrasound And Endoscopic Bronchoscopic Ultrasound In The Evaluation Of The
Lungs , Mediastinum And Pleura
Mediastinoscopy
Invasive Diagnostic Procedures
Preoperative Assessment Of The Thoracic Surgical Patients
Pulmonary Resections
Technical Aspect Of Lobectomy
Pneumonectomy And Its Modifications
Sleeve Lobectomy
Tracheal Sleeve Pneumonectomy
Segmentectomy And Lesser Pulmonary Resections
Robotic -Assisted Surgery In Pulmonary Diseases
Video-Assisted Thoracoscopic Surgery
Uniport Vats Lobectomy
Awake, Non-Intubated Trans Pleural Surgery
Post Operative Management Of The General Thoracic Surgery Patient
Complications Of Thoracic Surgical Patients

M. THE CHEST CAGE

Chest Wall Deformities
Hernias Of The Chest Wall
Infections Of The Chest Wall
Thoracic Outlet Syndrome
Chest Wall Tumors



Chest Wall Reconstruction

N. THE DIAPHRAGM

Embryology And Anatomy Of The Diaphragm
Physiology Of The Diaphragm And Surgical Approaches To The Paralyzed Diaphragm
Diaphragmatic Hernia
Primary Tumors Of The Diaphragm

O. THE PLEURA

Anatomy Of The Pleura
Absorption Of Gases In The Pleural Space
Pneumothorax
Mechanics And Fluid Dynamics Of Lung And Pleural Space
Benign Pleural Effusion
Parapneumonic Effusion, Empyema And Fibrothorax
Post Surgical Empyema
Tuberculous And Fungal Infections Of The Pleura
Thoracoplasty. Indications And Surgical Considerations
Anatomy Of The Thoracic Duct And Chylothorax
Pleural Neoplasm – Surgical Approaches For Malignant Pleural Mesothelioma, Chemotherapy
Malignant Pleural Effusion

P. THE TRACHEA AND BRONCHI

Tracheostomy
Therapeutic Bronchoscopic Procedures
Surgical Anatomy Of The Trachea And Techniques Of Resection And Reconstruction
Benign And Malignant Tumors Of The Trachea
Compression Of The Trachea By Vascular Rings

Q. CONGENITAL, STRUCTURAL, AND INFLAMMATORY DISEASES OF THE LUNG

Congenital Parenchymal Lesions Of The Lung
Pulmonary Complication Of Cystic Fibrosis
Congenital Vascular Lesions Of The Lung
Chronic Pulmonary Emboli
COPD For CT Surgery
Bullous And Bleb Diseases Of The Lung
Bacterial Infections Of The Lungs And Bronchial Compressive Disorders
Surgical Management Of Tuberculous And Non-Tuberculous Mycobacterial Infections Of The Lung
Thoracic Mycotic And Actinomycotic Infections Of The Lung

R. LUNG TRANSPLANTATION

S. CARCINOMA OF THE LUNG

Epidemiology And Carcinogenesis, Lung Cancer Screening, Investigation And Management Of Indeterminate Pulmonary Nodule, Pathology Of Carcinoma Of The Lung, Ex Vivo Diagnosis Of Lung Cancer, Staging Of Lung Cancer, Results Of Surgical Treatment Of Non-Small Cell Lung Cancer, Mediastinal Lymph Node Dissection, Adjuvant Chemotherapy For Lung Cancer, Radiation For Lung Cancer, Multimodality Therapy For Non-Small Cell Lung Cancer, Novel Therapeutic Strategy For Non-Small Cell Lung Cancer, Small Cell Lung Cancer

T. THORACIC TRAUMA

Blunt And Penetrating Injuries Of The Chest Wall, Pleura, Diaphragm, And Lungs
Barotrauma And Inhalation Injuries
Acute Respiratory Distress Syndrome
Managements Of Foreign Bodies Of The Aerodigestive Track
Blunt And Penetrating Injuries Of The Esophagus
Esophageal Perforation

U. THE ESOPHAGUS

Structure Of The Esophagus, Physiology Of The Esophagus
Diagnostic Studies Of The Esophagus.
Operative Procedures In The Management Of Esophageal Disease
Malignant Lesions Of The Esophagus
MEDIASTINUM
Structure And Function Of The Mediastinal Contents
Noninvasive Investigations
Invasive Diagnostic Investigations And Surgical Approaches
Mediastinal Infections, Mass Lesion In The Mediastinum, Control Of Vascular Obstructing Symptomatology
Primary Mediastinal Tumors And Syndromes Associated With Mediastinal Lesions
Mediastinal Cysts

V. VASCULAR SURGERY AND ENDOVASCULAR THERAPY

Embryology and Developmental Anatomy, Vessel wall Biology, Atherosclerosis
Intimal hyperplasia, ischemia reperfusion, Alterio genesis and Angio genesis, Arterial hemodynamics, Venous Pathophysiology, Lymphatic Pathophysiology,
Atherosclerotic risk factors
Clinical and Vascular laboratory evaluation
Vascular imaging- Arteriography, Venography, Computed Tomography, Magnetic Resonance Imaging and Arteriography, Vascular PET/CT and SPECT/CT, Intra Vascular Ultra sound,
Preoperative evaluation and management
Intraoperative management
Post operative management
Hospital Readmission in Vascular Surgery
Normal coagulation, coagulopathy and hemorrhage, Hypercoagulable state
Anticoagulant drugs, Antiplatelet agents, Thrombolytic agent,
Graft thrombosis, Graft infection Anastomotic aneurysms
Local endovascular complication and their management
Venous complications
Thoracic and Thoracoabdominal vascular exposure, abdominal vascular exposure,
Cerebrovascular exposure, Lower extremity vascular exposure, Upper extremity vascular exposure, Spinal operative exposure
Endovascular diagnostic technique
Endovascular Therapeutic technique
Laparoscopic and Robotic Aortic Surgery
Grafts and Devices- Autogenous grafts, Prosthetic grafts, Biological Grafts, Bioengineered vascular grafts, Nonaortic Stents and Stent grafts,
Novel and Evolving Aortic Endovascular devices



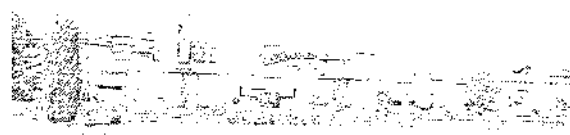
Abdominal Aortic and Iliac Aneurysm
Endovascular Aneurysm repair technique
Ruptured Aortoiliac aneurysm and their Management
Thoracic and Thoracoabdominal Aortic aneurysm and Dissection
Fenestrated and Branched Endograft treatment of Juxta renal, Para visceral,
Thoracoabdominal and Aortic arch Aneurysm
Peripheral and splanchnic aneurysm
Cerebrovascular disease
Acute limb ischemia
Lower extremity Chronic arterial disease
Thoracic outlet syndrome
Renovascular disease
Thrombo angiitis obliterans
Venous thromboembolic disease
Pulmonary embolism
Vascular malformation
Vascular trauma

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**Syllabus for Assistant Professor Posts of
the Department of Cardiology,
SKIMS, SOURA.**



In reference to letter No. SIMS:302/01/JKPSC/2026-1624-27 dated:26-05-2026, regarding framing of syllabus for Gazetted posts of SKIMS, Soura under direct recruitment.

The detailed syllabus prescribed for the post of Assistant Professor in the Department of Cardiology is given below.

1. Basic Cardiology

- Applied cardiac anatomy & physiology
- Cardiac embryology
- Cardiovascular pharmacology
- Cardiac pathology
- Molecular cardiology & genetics

2. Non-Invasive Cardiology

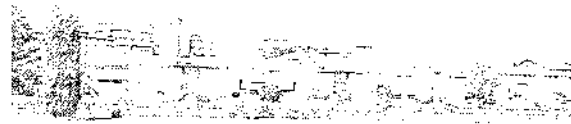
- ECG interpretation
- Holter and ambulatory BP
- Stress testing & stress echo
- Echocardiography:
- TTE
- TEE
- Strain imaging
- 3D/4D echo
- Cardiac CT & MRI
- Nuclear cardiology/PET viability

3. Invasive Cardiology

- Coronary angiography
- Hemodynamic assessment
- Right & left heart catheterization
- IVUS/OCT
- FFR/IFR
- PCI techniques
- Complications management

4. Coronary Artery Disease

- CCS/Chronic coronary syndrome
- ACS:
- STEMI
- NSTEMI
- Unstable angina



- Shock management
- Revascularization strategies

5. Heart Failure

- HFrEF/HFpEF
- Acute decompensated HF
- Cardiomyopathies
- Advanced HF therapies
- Device therapy:
- CRT
- ICD

6. Arrhythmias & EP

- Bradyarrhythmias
- Tachyarrhythmias
- Atrial fibrillation
- VT/VF
- Syncope
- EP studies
- Ablation
- Pacemakers & ICDs
- Sudden cardiac death

7. Valvular Heart Disease

- Rheumatic heart disease
- Degenerative valve disease
- Prosthetic valves
- Infective endocarditis
- TAVR/TAVI basics
- Mitral interventions

8. Congenital Heart Disease

- Cyanotic & acyanotic CHD
- Adult congenital heart disease
- Device closures
- Pulmonary hypertension



9. Hypertension & Preventive Cardiology

- Resistant HTN
- Dyslipidemia
- Diabetes & CVD
- Preventive cardiology
- Cardio-renal-metabolic medicine

10. Peripheral & Pulmonary Vascular Disease

- PAD
- Aortic disease
- DVT/PE
- Pulmonary hypertension

11. Research & Academics

- Clinical trials
- Statistics basics
- Evidence-based medicine
- Guidelines:
- Teaching methodology
- Thesis/publication methodology

12. Administrative/Faculty-Oriented Questions

- How to improve academics in department
- Simulation training
- Cath lab quality control
- Mortality audits
- DMteaching structure
- Handling emergencies & manpower

Dr. Imran Hafeez
Professor & Head
Department of Cardiology

**DEAN MEDICAL FACULTY
SKIMS**



GOVERNMENT OF JAMMU & KASHMIR
SHER-I-KASHMIR INSTITUTE OF MEDICAL SCIENCES
SOURA SRINAGAR

**Syllabus for Assistant Professor Posts of
the Department of Clinical Biochemistry,
SKIMS, SOURA.**

SYLLABUS ASSISTANT PROFESSOR (BIOCHEMISTRY)

UNIT I: CELL BIOLOGY AND GENERAL BIOCHEMISTRY

- Cell structure and function
- Biomembranes and membrane transport
- Cell organelles and cytoskeleton
- Cell signaling and receptors
- Water and electrolyte balance
- pH, buffers, Henderson-Hasselbalch equation
- Osmosis, diffusion, surface tension
- Colloids and laws of mass action

UNIT II: ENZYMOLOGY

- Classification and nomenclature of enzymes
- Enzyme kinetics and Michaelis-Menten equation
- Factors affecting enzyme activity
- Enzyme inhibition and activation
- Regulation of enzyme activity
- Isoenzymes and diagnostic significance
- Clinical enzymology
- Therapeutic applications of enzymes

UNIT III: PROTEIN AND AMINO ACID METABOLISM

- Chemistry and classification of amino acids
- Structure and function of proteins
- Plasma proteins and immunoglobulins
- Structural proteins: collagen, elastin, keratin
- Contractile proteins
- Glycoproteins and proteoglycans
- Hemoglobin structure and function
- Hemoglobinopathies and thalassemias
- Heme synthesis and degradation
- Porphyrins and jaundice
- Amino acid metabolism
- Inborn errors of amino acid metabolism
- Protein folding disorders and prion diseases

UNIT IV: CARBOHYDRATE METABOLISM

- Chemistry and classification of carbohydrates



- Glycolysis
- Glycogenesis and glycogenolysis
- Gluconeogenesis
- Pentose phosphate pathway
- TCA cycle
- Electron transport chain and oxidative phosphorylation
- Regulation of blood glucose
- Diabetes mellitus and complications
- Glycogen storage diseases
- Galactosemia and fructose metabolism disorders
- Inborn errors of carbohydrate metabolism

UNIT V: LIPID METABOLISM

- Chemistry and classification of lipids
- Fatty acid oxidation and synthesis
- Ketone body metabolism
- Cholesterol metabolism
- Lipoproteins and dyslipidemias
- Eicosanoids and prostaglandins
- Fatty liver
- Obesity and metabolic syndrome
- Atherosclerosis
- Lysosomal storage diseases
- Inborn errors of lipid metabolism

UNIT VI: NUCLEIC ACIDS AND MOLECULAR BIOLOGY

- Structure and function of DNA and RNA
- DNA replication and repair
- Transcription and translation
- Regulation of gene expression
- Epigenetics
- Cell cycle and apoptosis
- Oncogenes and tumor suppressor genes
- Molecular basis of cancer
- Tumor markers
- Mitochondrial genetics
- Recombinant DNA technology
- PCR and Real-Time PCR
- DNA sequencing
- Southern, Northern and Western blotting
- RFLP and DNA fingerprinting
- CRISPR and gene editing
- Gene therapy
- Stem cell biology



- RNA interference
- DNA microarray
- Prenatal and neonatal molecular diagnosis
- Basics of bioinformatics

UNIT VII: IMMUNOLOGY

- Innate and Adaptive Immunity
- Antigens, Antibodies and Immunoglobulins
- Antigen-Antibody Reactions and Complement System
- Major Histocompatibility Complex (MHC) and Antigen Presentation
- Hypersensitivity Reactions
- Autoimmune Diseases
- Immunodeficiency Disorders
- Transplantation Immunology
- Tumor Immunology
- Monoclonal Antibodies and Their Applications
- Vaccines and Immunization
- Laboratory Diagnosis of Immunological Disorders

UNIT VIII: NUTRITION, VITAMINS AND MINERALS

- Principles of Nutrition, Balanced Diet and Nutritional Requirements
- Digestion, Absorption and Metabolism of Nutrients
- Energy Metabolism, Basal Metabolic Rate (BMR), Respiratory Quotient (RQ) and Specific Dynamic Action (SDA)
- Protein-Energy Malnutrition (PEM), Obesity and Nutritional Disorders
- Vitamins: Classification, Sources, Metabolism, Biochemical Functions, Recommended Dietary Allowances (RDA), Deficiency Disorders and Toxicity
- Minerals and Trace Elements: Sources, Requirements, Biochemical Functions, Deficiency and Excess States
- Nutritional Assessment and Laboratory Evaluation of Nutritional Disorders
- Free Radicals, Oxidative Stress and Antioxidants
- Xenobiotics, Biotransformation and Detoxification Mechanisms.

UNIT IX: ENDOCRINOLOGY

- Hormone Classification, Biosynthesis, Secretion, Transport, Metabolism and Mechanism of Action
- Hypothalamic and Pituitary Hormones
- Thyroid and Parathyroid Hormones
- Pancreatic Hormones and Glucose Homeostasis
- Adrenal Cortical and Medullary Hormones
- Gonadal Hormones and Reproductive Endocrinology



- Gastrointestinal Hormones and Neuroendocrine Peptides
- Reproductive Biochemistry: Ovulation, Fertilization, Pregnancy and Lactation
- Infertility, Assisted Reproductive Technologies and Contraception
- Endocrine Regulation of Metabolism and Endocrine Interrelationships
- Disorders of Thyroid, Parathyroid, Pituitary, Adrenal and Gonadal Function
- Diabetes Mellitus and Other Endocrine Metabolic Disorders
- Endocrine Tumors and Multiple Endocrine Neoplasia Syndromes
- Laboratory Diagnosis and Hormonal Evaluation of Endocrinopathies
- Dynamic Endocrine Function Tests and Interpretation of Hormonal Assays.

UNIT X: CLINICAL BIOCHEMISTRY

- Organ Function Tests: Liver Function Tests (LFT), Renal Function Tests (RFT), Thyroid Function Tests (TFT), Pancreatic Function Tests, Cardiac Function Tests, Gastrointestinal Function Tests, Acid-Base Disorders and Blood Gas Analysis
- Body Fluid Analysis: Cerebrospinal Fluid (CSF), Pleural Fluid, Peritoneal Fluid, Pericardial Fluid, Synovial Fluid and Semen Analysis
- Metabolic and Endocrine Disorders: Diabetes Mellitus, Metabolic Syndrome, Dyslipidemias, Obesity, Electrolyte Disorders, Calcium, Phosphate and Magnesium Disorders
- Cancer Biochemistry and Tumor Markers: Cancer Screening, Diagnosis, Prognosis and Monitoring
- Pregnancy and Reproductive Biochemistry: Pregnancy Tests, Fetoplacental Function Tests and Infertility Evaluation
- Bone and Mineral Metabolism: Bone Metabolism Markers and Metabolic Bone Disorders
- Cardiac Biomarkers and Laboratory Evaluation of Cardiovascular Diseases
- Sepsis Biomarkers, Inflammatory Markers and Acute Phase Reactants
- Therapeutic Drug Monitoring (TDM) and Clinical Toxicology
- Laboratory Diagnosis of Infectious Diseases including HIV/AIDS and Viral Hepatitis
- Laboratory Evaluation of Autoimmune Diseases and Immunological Disorders
- Metabolic Liver Diseases, Non-Alcoholic Fatty Liver Disease (NAFLD) and Metabolic Dysfunction-Associated Steatotic Liver Disease (MASLD)
- Laboratory Evaluation of Inborn Errors of Metabolism
- Clinical Interpretation of Biochemical Investigations and Case-Based Laboratory Diagnosis.

UNIT XI: BIOCHEMICAL AND MOLECULAR TECHNIQUES

- Chromatographic Techniques: Paper Chromatography, Thin Layer Chromatography (TLC), High Performance Liquid Chromatography (HPLC), Gas Chromatography (GC)
- Electrophoretic Techniques: Protein Electrophoresis, Lipoprotein Electrophoresis, Hemoglobin Electrophoresis, Isoelectric Focusing
- Spectroscopic Techniques: Colorimetry, Spectrophotometry, Fluorometry, Flame Photometry, Atomic Absorption Spectrometry, Chemiluminescence

- Immunological Techniques: ELISA, CLIA, RIA, Immunofixation, Nephelometry, Turbidimetry, Flow Cytometry
- Molecular Diagnostic Techniques: PCR, RT-PCR, Real-Time PCR (qPCR), DNA Sequencing, Fluorescence In Situ Hybridization (FISH), Microarray Technology, Next Generation Sequencing (NGS), Molecular Biomarkers
- Radioisotope Techniques and Applications in Biomedical Research
- Automation and Instrumentation: Clinical Chemistry Analyzers, Immunoassay Analyzers, Blood Gas Analyzers, HbA1c Analyzers, Point-of-Care Testing (POCT) Devices
- Laboratory Informatics, Laboratory Information Systems (LIS) and Digital Laboratory Technologies.

UNIT XII: QUALITY ASSURANCE, ACCREDITATION AND LABORATORY MANAGEMENT

- Internal Quality Control (IQC)
- External Quality Assessment Scheme (EQAS)
- Westgard Rules and Levey-Jennings Charts
- Method Validation and Verification
- Reference Intervals and Biological Variation
- Laboratory Accreditation: ISO 15189, NABL Guidelines, CAP Standards
- Good Laboratory Practices (GLP) and Good Clinical Laboratory Practices (GCLP)
- Biosafety, Biosecurity and Biomedical Waste Management
- Inventory and Reagent Management
- Equipment Calibration, Maintenance and Troubleshooting
- Laboratory Audits and Risk Management
- Laboratory Ethics and Regulatory Compliance
- Automation in Clinical Laboratories
- Laboratory Information Systems (LIS)
- Pre-analytical, Analytical and Post-analytical Quality Assurance
- Critical Value Reporting and Turnaround Time (TAT) Monitoring.

UNIT XIII: BIOSTATISTICS AND RESEARCH METHODOLOGY

- Types of data and measurement scales
- Data collection, classification and presentation
- Measures of central tendency and dispersion
- Probability and probability distributions
- Sampling techniques and sample size determination
- Hypothesis testing and confidence intervals
- **Parametric tests:** Z-test, Student's t-test (paired and unpaired), ANOVA, Pearson correlation, linear regression
- **Non-parametric tests:** Chi-square test, Fisher's exact test, Mann-Whitney U test, Wilcoxon signed-rank test, Kruskal-Wallis test, Friedman test, McNemar test, Spearman rank correlation, Kendall's Tau

- Diagnostic test evaluation: Sensitivity, specificity, predictive values, likelihood ratios, ROC curve and AUC
- Epidemiological measures: Incidence, prevalence, relative risk, odds ratio, attributable risk
- Research methodology: Study designs, clinical trials, Good Clinical Practice (GCP), evidence-based medicine
- Systematic reviews and meta-analysis
- Research ethics, publication ethics and scientific writing

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GOVERNMENT OF JAMMU & KASHMIR
SHER-I-KASHMIR INSTITUTE OF MEDICAL SCIENCES
SOURA SRINAGAR

**Syllabus for Assistant Professor Posts of
the Department of Clinical Haematology
& Paediatric Haematology,
SKIMS, SOURA.**

1. Core Curriculum of Hematology

1. Introduction to Clinical Hematology
2. Hematopoiesis and bone marrow microenvironment
3. Bone marrow examination and interpretation
4. Red blood cells: structure and function
5. White blood cells and immune system development
6. Overview of normal hemostatic mechanisms
7. Automated hematology analyzers and interpretation
8. Peripheral smear interpretation
9. Special stains and cytochemistry
10. Hemoglobin electrophoresis and HPLC
11. Flow cytometry and applications
12. Molecular diagnostics: PCR, RT-PCR, FISH, NGS
13. Cytogenetics and cytogenomics
14. Minimal/measurable residual disease (MRD) techniques
15. Circulating tumor DNA (ctDNA)
16. Principles of Nuclear Medicine in hematology and oncology
17. Biostatistics and research methodology
18. Evidence-based medicine and critical appraisal
19. Clinical trial design and Good Clinical Practice (GCP)
20. Quality assurance, NABH and NABL concepts

2. Hemolytic Anemias

21. Iron metabolism and iron deficiency anemia
22. Megaloblastic anemia
23. Anemia of chronic disease
24. Hemoglobinopathies
25. Thalassemia: clinical aspects, molecular genetics, and screening
26. Sickle cell disease
27. Red cell membrane disorders
28. Red cell enzymopathies
29. Autoimmune hemolytic anemia
30. Paroxysmal nocturnal hemoglobinuria
31. Bone marrow failure syndromes
32. Aplastic anemia
33. Pure red cell aplasia
34. Polycythemia and erythrocytosis
35. Red cell disorders in pregnancy and newborn
36. Hematological manifestations of systemic diseases

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37. Hematological manifestations of infections including HIV and tuberculosis

37. Hematological manifestations of infections

38. Megakaryopoiesis and platelet physiology
39. Quantitative and qualitative platelet disorders
40. Immune thrombocytopenia (ITP)
41. Thrombotic thrombocytopenic purpura and hemolytic uremic syndrome
42. Hemophilia: genetics, diagnosis, and management
43. Novel therapies in hemophilia including emicizumab and gene therapy
44. Von Willebrand disease
45. Rare coagulation disorders
46. Dysfibrinogenemias
47. Disseminated intravascular coagulation
48. Fibrinolytic disorders
49. Lupus anticoagulant and antiphospholipid syndrome
50. Inherited thrombophilia
51. Cancer-associated thrombosis
52. Thrombosis in pregnancy
53. Pediatric thrombosis
54. Laboratory evaluation of prothrombotic states
55. Anticoagulants including DOACs and monitoring
56. Viscoelastic testing (TEG/ROTEM)
57. Massive transfusion protocols
58. Hemostasis in newborns

38. Hematology of hematologic disorders

59. WHO/ICC classification of hematolymphoid neoplasms
60. Cell cycle and carcinogenesis
61. Principles of chemotherapy and targeted therapy
62. Acute lymphoblastic leukemia in children and adults
63. Philadelphia chromosome positive ALL
64. Acute myeloid leukemia and ELN risk stratification
65. Acute promyelocytic leukemia
66. Measurable residual disease in leukemia
67. Molecular genetics of leukemia
68. Chronic myeloid leukemia
69. Chronic lymphocytic leukemia
70. Hairy cell leukemia
71. T-cell lymphoproliferative disorders
72. Myelodysplastic syndromes
73. Myeloproliferative neoplasms

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74. Polycythemia vera
75. Essential thrombocythemia
76. Primary myelofibrosis
77. JAK2, CALR, and MPL mutations
78. Lymphoma classification and staging
79. Hodgkin lymphoma
80. Non-Hodgkin lymphoma
81. PET-CT in lymphoma
82. Plasma cell disorders
83. Multiple myeloma
84. MGUS and smoldering myeloma
85. Amyloidosis
86. Waldenström macroglobulinemia
87. Histiocytic disorders
88. Clonal hematopoiesis (CHIP/CCUS)

VI Hematopoietic Stem Cell Transplantation and Cellular Therapy

89. Principles of hematopoietic stem cell transplantation
90. Autologous and allogeneic transplantation
91. Conditioning regimens
92. Stem cell sources and collection
93. Graft versus host disease
94. Infection prophylaxis post-transplant
95. Supportive care in transplantation
96. Cellular therapies including CAR-T therapy

VI Transfusion Medicine and Transfusion Immunology

97. Blood group systems and immunohematology
98. Component preparation and therapy
99. Apheresis procedures
100. Irradiated and leukoreduced blood products
101. Transfusion reactions and management
102. Massive transfusion
103. Blood safety and NAT testing
104. Hemovigilance
105. Stem cell collection and processing
106. Quality systems in transfusion medicine

VII Infectious Complications in Hematology

107. Febrile neutropenia
108. Antimicrobial prophylaxis

Dr. M. L. S.
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- 109. Tumor lysis syndrome
- 110. Hyperleukocytosis and leukostasis
- 111. Hematologic emergencies
- 112. Palliative care in hematologic malignancies
- 113. Consultative hematology in surgery
- 114. Consultative hematology in obstetrics and gynecology
- 115. Hematological issues in critical care

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GOVERNMENT OF JAMMU & KASHMIR
SHER-I-KASHMIR INSTITUTE OF MEDICAL SCIENCES
SOURA SRINAGAR

**Syllabus for Assistant Professor Posts of
the Department of Clinical Immunology
& Rheumatology,
SKIMS, SOURA.**

**GOVERNMENT OF JAMMU & KASHMIR
SHER-I-KASHMIR INSTITUTE OF MEDICAL SCIENCES
DEPARTMENT OF CLINICAL IMMUNOLOGY AND RHEUMATOLOGY**

Subject: Syllabus for the post of Assistant Professor Recruitment Examination.

1. Basic Sciences

- Immunology: Innate and adaptive immunity, immune tolerance, autoimmunity, HLA system, cytokines, complement, antigen presentation, immunogenetics.
- Musculoskeletal biology: Bone, cartilage, synovium, muscle, tendon and enthesis biology.
- Molecular medicine: Signal transduction, apoptosis, epigenetics, biomarkers, precision medicine.

2. Clinical Rheumatology

Inflammatory Arthritis

- Rheumatoid arthritis
- Spondyloarthritis (Ankylosing spondylitis, Psoriatic arthritis, Reactive arthritis, Enteropathic arthritis)
- Juvenile idiopathic arthritis

Connective Tissue Diseases

- Systemic lupus erythematosus and lupus nephritis
- Systemic sclerosis
- Idiopathic inflammatory myopathies
- Sjögren syndrome
- Mixed and undifferentiated connective tissue diseases
- Antiphospholipid syndrome

Vasculitis

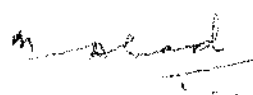
- Large, medium and small vessel vasculitis
- ANCA-associated vasculitis
- Behçet disease and other variable vessel vasculitides

Crystal and Degenerative Disorders

- Gout and CPPD disease
- Osteoarthritis

Autoinflammatory Disorders

- Familial Mediterranean fever
- TRAPS
- CAPS
- DADA2 deficiency
- Adult-onset Still's disease
- VEXAS syndrome



3. Clinical Immunology

- Mechanisms of autoimmunity
- Autoantibodies and autoimmune diseases
- Primary and secondary immunodeficiency disorders
- Hypersensitivity reactions and allergy
- Drug-induced autoimmune diseases
- Transplant immunology

4. Diagnostic Rheumatology

Laboratory Evaluation

- ANA and ANA patterns
- ENA profile
- Anti-dsDNA
- RF and Anti-CCP
- ANCA
- Antiphospholipid antibodies
- Complement assays
- HLA typing
- Biomarkers in rheumatic diseases

Imaging and Procedures

- Conventional radiology
- Musculoskeletal ultrasonography
- MRI and CT
- PET-CT
- Nailfold capillaroscopy
- Synovial, muscle and renal biopsy interpretation

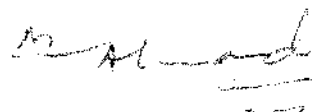
5. Therapeutics

Conventional DMARDs

- Methotrexate
- Sulfasalazine
- Leflunomide
- Hydroxychloroquine
- Azathioprine
- Mycophenolate mofetil
- Cyclophosphamide

Advanced Therapies

- Biologic DMARDs (TNF, IL-6, IL-17, IL-23 inhibitors, Rituximab, Abatacept, Belimumab, Anifrolumab)
- Targeted synthetic DMARDs (JAK and TYK2 inhibitors)
- Glucocorticoids and immunosuppressive therapy
- Emerging therapies including CAR-T cell therapy and stem-cell transplantation



6. Special Topics

- Rheumatologic emergencies (MAS, CAPS, diffuse alveolar hemorrhage, scleroderma renal crisis, septic arthritis)
- Pregnancy and rheumatic diseases
- Vaccination in rheumatic diseases
- Tuberculosis, viral hepatitis and HIV in rheumatology
- Rheumatic manifestations of systemic diseases
- Interstitial lung disease and pulmonary hypertension associated with rheumatic diseases

7. Research Methodology and Biostatistics

- Study designs and clinical trials
- Systematic reviews and meta-analysis
- Sample size estimation
- Relative risk, odds ratio and hazard ratio
- Survival analysis and regression models
- Interpretation of p-values and confidence intervals
- Evidence-based medicine
- Research ethics and Good Clinical Practice (GCP)

8. Disease Activity and Outcome Measures

- DAS28, CDAI, SDAI, RAPID3
- BASDAI, ASDAS
- SLEDAI, BILAG
- BVAS
- HAQ-DI
- SF-36

9. ACR/Eular Guidelines for management of Rheumatic diseases.

10. Recent Advances in Clinical Immunology & Rheumatology

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GOVERNMENT OF JAMMU & KASHMIR
SHER-I-KASHMIR INSTITUTE OF MEDICAL SCIENCES
SOURA SRINAGAR

**Syllabus for Assistant Professor Posts of
the Department of Clinical
Pharmacology,
SKIMS, SOURA.**

A. General pharmacology

- History of development, definition and scope of clinical pharmacology
- Basic pharmacokinetic (PK) principles - ADME (Absorption, Distribution, Metabolism and Excretion) of drugs, membrane transporters
- Studies on bioavailability of drugs including novel dosage forms, drug-drug and drug food interactions, enzyme induction and inhibition,
- Therapeutic drug monitoring – drugs requiring Therapeutic drug monitoring (TDM), dosage adjustments based on physiological or pathological changes, dose optimization strategies
- Population pharmacokinetics: sources and correlates of variability in drug concentrations in patients
- Dose response relationship, PK-PD modelling and simulation
- Physiologically-based pharmacokinetic (PBPK) modeling and simulation - the effects of extrinsic factors viz. concomitant drugs, food and intrinsic factors viz. age, organ dysfunction, disease status, and genetics on drug exposures
- Basic pharmacodynamic (PD) principles – molecular basis of drug action
- Drug disease, drug host, drug environment interactions - mechanisms and clinical importance
- Drug use in special prescribing situations – in children, elderly, during pregnancy, lactation, organ dysfunction – hepatic, renal, cardiac etc., malnutrition
- Pharmacogenomics – application of pharmacogenomics in therapeutic decision making and optimization of clinical care, precision/ personalized medicine, major alleles and frequencies in African and European population, gene based dosing recommendation for selected drugs, classification of G6PD deficiency (WHO-working group), genetic variations in transporters, drug induced hypersensitivity reactions, epi-genomics.
- Animal toxicology and PK-PD data relevant to clinical evaluation of new drugs
- Nomenclature of drugs
- Pharmaco-epidemiology - basic principles of epidemiology, study designs, confounding and bias, analysis and interpretation of data, survival analysis, propensity score methods
- Pharmaco-economics-fundamental concepts and methods, terminology, role in drug development and healthcare decision making and formulary management.

B. Systemic pharmacology

- Cardiovascular system - ischemic heart disease, hypertension, heart failure, circulatory shock, cardiac arrhythmias, stroke, hyperlipidemias and pulmonary arterial hypertension and metabolic syndrome
- Central nervous system - epilepsy, psychosis, depression, mania, anxiety, sleep disorders, general and local anesthetics, opioid analgesics, neurodegenerative disorders, drug addiction.
- Pulmonary pharmacology (common bronchopulmonary diseases. like bronchial asthma, COPD, pulmonary fibrosis and pulmonary function tests)
- Genitourinary system - kidney diseases, acute kidney injury, chronic kidney disease, renal failure, urolithiasis, benign prostatic hypertrophy and prostatic carcinoma
- Gastrointestinal pharmacology – peptic ulcer, GERD, GI motility disorders, inflammatory bowel disease, irritable bowel syndrome.
- Hepatobiliary systems, viral hepatitis, nonalcoholic fatty liver disease, cirrhosis
- Hormones and hormone antagonists – thyroid, female reproductive system, male reproductive system, adrenals, pancreas including diabetes mellitus, bone mineral homeostasis, hypothalamic pituitary axis.
- Cytotoxic and targeted cancer chemotherapy, hormones and related agents in cancer therapy.
- Immuno-pharmacology- immune-suppressants – glucocorticoids, calcineurin inhibitors, antiproliferative and antimetabolic agents, biologics, immunological reactions to drugs and drug allergy.

- Ocular pharmacology – drug delivery strategies, ophthalmic uses of drugs - antimicrobials, autonomic agents, anti-inflammatory, immunomodulatory agents, drugs for retinal neovascularization and macular degeneration, ocular adverse effects of drugs.
- Dermatologic pharmacology
- Pharmacotherapy of inflammation, pain, fever
- Chemotherapy of infectious diseases- bacterial, viral, fungal, protozoal, helminthic and other infections
- Nutraceuticals
- Clinical pharmacology of drugs used in cardiovascular, CNS, renal, pulmonary, gastrointestinal tract, infective, and other disorders
- Common malignant diseases- pathophysiology, drug targets
- Drugs for neglected diseases initiatives in India

C. Use of drugs for diagnostic purposes

- Special contrast media
- Radionuclide imaging
- Imaging in drug development

D. Research methodology and medical biostatistics

- Sampling methods, design for observational studies,
- Interventional and epidemiologic study designs, confidence interval, principles of test of significance, sample size, type I and type II error,
- Qualitative research methods ,
- Data types and choice of statistical methods
- Descriptive statistics measures and graphs
- Sample size determination and power analysis
- Statistical test, Parametric and non-parametric tests
- Tests for comparing proportions
- Correlation and regression
- Statistics of diagnostic tests
- Logistic regression, multiple regression
- Survival analysis
- Critical interpretation of statistical outputs including P-values and confidence intervals, multiple hypothesis testing
- Principles of interim analysis of clinical trial data
- Overview of statistical software
- Basics of data management
- Role of biostatistician in protocol designing
- Principles of critical appraisal of literature, levels of evidence and quality of evidence
- Role and limitations of evidence in development of guidelines.

E. Clinical trials, BA/BE studies, Bioequivalence and allied topics

- Salient features of various phases of clinical trials, principles of controlled clinical trials, sequential trials, crossover trials, adaptive trials and registries
- Special considerations for Phase I studies – principles of First in Human (FIH) dose determination, pharmacokinetic studies, human pharmacodynamic studies, tolerance, single dose/ multiple dose, dose escalation, infrastructure requirements
- Phase II: Dose selection, study designs, selection of subjects, proof of concept studies, dose ranging studies
- Phase III: Study designs, multicenter trials, global trials, site selection
- Post-marketing studies: types of studies and their objectives, post-marketing surveillance, phase IV trials, Periodic safety update/assessment reports
- Principles and methods of Bioequivalence studies

- Multicentric studies: organization, standardization, quality control, training, protocol compliance, data processing, central randomization, issues
- Use of placebo: pharmacology of placebo, historical aspects, active/inert placebo, placebo reactors, ethics of placebo.
- Washouts and run-in periods: needs, ethics, duration
- Withdrawals, dropouts, and missing values: problems, handling of data
- Clinical trial designs including herbal medicines and AYUSH medicines – history, present status, standardization, preclinical evaluation, special issues and their solutions, regulatory aspects.
- Protocol design, Case Report Form (CRF), design of standard operating procedure (SOP) development
- Adaptive designs of clinical trials, platform trials, basket trials, umbrella designs
- Interim analysis
- Randomization, blinding and other bias control measures – need, methods, issues and their solutions
- Endpoints and biomarkers (including surrogates) – selection in specific therapeutic areas.
- Stopping rules
- Superiority, inferiority, and equivalence trials
- Per-protocol and intention-to-treat analysis
- Role of monitors, inspectors, auditors, Data Safety Monitoring Board (DSMB)
- Special considerations for bioequivalence and bioavailability (BA/BE) studies.
- Specific topics: academic trials, collaborative research, compensation for participation and trial related injury, trial insurance, compliance monitoring, quality of life assessment.
- Clinical and preclinical development of vaccines
- Clinical trials of repurposed drugs.

F. Ethics in clinical practice and research, including

- Historical evolution of principles of ethics
- Principles of risk benefit assessment
- Nuremberg code, Belmont report, Declaration of Helsinki
- Indian Council of Medical Research (ICMR) ethics guidelines, ethics of pediatric research, pandemic research, research integrity and publication ethics
- Ethical dilemmas in clinical practice and research
- Role of the ethics committee, informed consent
- Vulnerable subjects in clinical research
- Ethics of clinical practice, for e.g., resource allocation in pandemics, organ transplant, euthanasia
- Audiovisual consent.

G. Preclinical studies and their assessment

- Animal pharmacology – efficacy and safety studies, assessment of adequacy of data
- Pharmacokinetics and toxicokinetic studies
- Toxicity studies: acute, subacute, chronic
- Mutagenicity, carcinogenicity, reproductive toxicity, special toxicity studies, safety pharmacology studies, QT prolongation studies
- Good laboratory practices, OECD principles.

H. Pharmaceutics and drug discovery

- Drug formulations, pharmaceutical equivalence
- Good manufacturing practices
- Bioavailability, bioequivalence and bioequivalence studies
- New drug delivery systems
- Screening of chemical compounds, high throughput screening
- Computer assisted drug designing

- General pharmacology and systematic screening.
- Techniques in drug discovery: bioinformatics, proteomics and metabolomics.
- Role of FDA in drug development
- Role of imaging in drug development-molecular imaging techniques and imaging therapeutic drug effects

I. Rational use of medicines, including:

- Principles of rational use of medicines
- Essential medicine lists
- Drug Formularies
- Standard treatment guidelines or protocols from Indian Council of Medical Research, Ministry of Health and Family Welfare and other professional bodies
- Rationality of fixed dose combinations
- Antibiotic policy and antimicrobial stewardship programs for respective medical institutions – role of a clinical pharmacologist – principles, methods, prospective audit and feedback, formulary restriction, educational interventions, guidelines, IV oral switching, dose optimization, timeouts, antibiotic use measures, special situations viz. intensive care, healthcare acquired infections, immuno-compromised patients etc.

J. Regulatory affairs, including

- Good Clinical Practice – role and responsibilities of stakeholders
- Good Laboratory Practice, Good Clinical Laboratory Practice and Good Manufacturing Practice, Other quality guidelines/ regulations – GxP (a collection of quality guidelines and regulations created to ensure that bio/pharmaceutical products are safe, meet their intended use, and adhere to quality processes during manufacturing, control, storage, and distribution)
- Drug laws applicable in India, new drug clinical trial Rules, 2019
- Structure and functions of drug control authority (Central Drugs Standard Control Organization), State Licensing Authorities
- Drug price control by National Pharmaceutical Pricing Authority, Government of India
- Emergency Use authorization of vaccines/ drugs in pandemic situation
- Regulation of nutraceuticals, medical devices, biologics and biosimilars
- Mutual acceptability of data across countries.
- Phytopharmaceuticals.

K. Pharmacovigilance and allied topics, including:

- Types of adverse drug reactions
- Methods of pharmacovigilance
- Causality assessment
- Signal detection and processing
- Adverse events following immunization
- Haemovigilance
- Materiovigilance
- Medication errors
- National program- PvPI, WHO program of international drug monitoring.

L. Clinical toxicology, including:

- General principles of toxicology
- Common poisons and drug toxicities
- Common environmental and occupational hazards
- Basic mechanisms of mutagenesis, teratogenesis, carcinogenesis and organ-specific toxicities
- Sources of toxicology information
- General management of poisoned patient

- Use of specific antidotes and chelating agents
- Use of specialized treatment techniques e.g. charcoal haemoperfusion, haemodialysis
- Management of envenomation e.g. scorpion or snake bites
- Aspects of analytical and forensic toxicology relevant to the poisoned patient.

M. Novel drug delivery systems and therapeutic approaches, including:

- Liposomal and nanoparticle-based drug delivery
- Inhalational drug delivery
- Monoclonal antibodies and other targeted therapies
- Gene therapy
- Stem cell therapy

N. Miscellaneous topics, including:

- Biosimilar drug products
- Drug utilization studies
- Principles of evidence-based medicine
- Basics of bioinformatics
- Orphan drugs
- Basic and clinical contraceptive research for women and men
- Fetal medicine
- Critical appraisal of pharmaceutical promotional literature
- Clinical Trials Registry of India
- Role of government institutes, pharmaceutical industry, and academic centres in drug development collaborative efforts.
- Intellectual Property Rights and patent rights
- Setting up clinical pharmacology units – roles, infrastructure, personnel requirements.
- Drug repurposing/ repositioning
- Drug development during emergency situations viz. pandemics.
- Ethnopharmacology
- Reverse pharmacology
- Ecopharmacology
- Translational pharmacology
- Chronopharmacology
- Off label use of drugs
- Orphan drugs
- Structural Activity relationship of sympathomimetics, corticosteroids and Antipsychotics.
- Recent advances in cardiovascular drugs and management of HIV.

O. Analytical-biochemical assay:

- ELISA
- Radioimmunoassay (RIA)
- Fluorescence polarization immunoassay (FPIA)
- Thin layer chromatography, HPLC, PCR, GC-MS, LC-MS
- Nuclear magnetic resonance(NMR)
- High throughput screening (HTS)
- Spectrophotometry
- Limit test in pharmaceuticals, Limulus Amebocyte Lysate (LAL)
- Compartmental analysis of drug development
- Non- Compartmental and Compartmental approaches to PK/PD analysis



GOVERNMENT OF JAMMŪ & KASHMIR
SHER-I-KASHMIR INSTITUTE OF MEDICAL SCIENCES
SOURA SRINAGAR

**Syllabus for Assistant Professor Posts of
the Department of Emergency Medicine,
SKIMS, SOURA.**

SYLLABUS FOR SCREENING TEST FOR THE POST OF ASSISTANT PROFESSOR, EMERGENCY MEDICINE DEPARTMENT

1. Prehospital Care-

- Emergency Medical Services: Historical Background, Overview and Future Trends, Prehospital equipments & adjuncts
- Air Medical Transport, Neonatal and pediatric Transport
- Mass Gatherings

2. Disaster Preparedness-

- Disaster Preparedness and Response
- Natural Disaster
- Bomb Blast, and Crush Injuries
- Chemical Agents and Mass Casualties
- Bio-Terrorism, Radiation Injuries

3. Resuscitation and Resuscitative procedure-

- Sudden Cardiac Death
- Resuscitation (basic and advanced life support) of Neonates, Children, Pregnancy and Adults
- Ethical Issue of Resuscitation
- Acid-Base Disorder, Fluids and Electrolytes
- Blood Gases, pulse oximetry capnography
- Cardiac rhythm disturbances
- Pharmacology of vasopressor, inotropes, antiarrhythmics antihypertensives agents
- Approach to the patient in shock
- Anaphylaxis and allergy
- Airway management (noninvasive, invasive, surgical)
- Mechanical ventilation
- Vascular access (Neonatal, pediatric, adults)
- Hemodynamic monitoring
- Cardiac pacing
- Defibrillation and cardioversion
- Pericardiocentesis



4. Analgesia, anesthesia and procedural sedation-

- Acute pain management (infants, children, adults)
- Local and regional anesthesia
- Procedural sedation and analgesia (infants, children, adults)
- Adults with chronic pain

5. Emergency wound management-

- Wound: Evaluation, preparation, closure
- Laceration to: face, scalp, arm, forearm, hand, thigh, leg, foot
- Soft tissue foreign bodies
- Puncture wound and bites
- Postrepair wound care

6. Cardiovascular Disease-

- Chest pain, Acute coronary syndrome, Low probability acute coronary syndrome
- Cardiogenic shock, Acute heart failure
- Syncope
- Valvular emergencies
- The cardiomyopathies, myocarditis, and pericardial disease
- Thromboembolism
- Systemic and pulmonary hypertension
- Aortic dissection and related aortic syndrome
- Aneurysmal disease
- Arterial occlusion

7. Pulmonary Emergencies-

- Respiratory distress
- Hemoptysis
- Acute bronchitis and upper respiratory tract infection
- Community acquired pneumonia, aspiration pneumonia and noninfectious pulmonary infiltrates
- Empyema and lung abscess
- Tuberculosis
- Pneumothorax
- Acute asthma in adults
- Chronic obstructive pulmonary disease

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8. Gastrointestinal Emergencies-

- Acute abdominal pain
- Nausea and vomiting
- Disorders presenting primarily with diarrhea
- Constipation
- Upper gastrointestinal and Lower gastrointestinal bleeding
- Esophageal emergencies
- Peptic ulcer disease and gastritis
- Pancreatitis, cholecystitis, Acute appendicitis, Diverticulitis
- Hepatic disorder, jaundice and hepatic failure
- Bowel obstruction and volvulus
- Hernias, Anorectal disorder
- Gastrointestinal procedures and devices
- Complication of general surgical procedures

9. Renal and Genitourinary Disorders-

- Acute renal failure
- Rhabdomyolysis
- End stage renal disease
- Urinary tract infections and hematuria
- Acute urinary retention
- Male genital problems
- Urologic stone disease
- Complication of urologic procedures and devices

10. Pediatrics and neonatal-

- Emergency care of children
- Neonatal emergencies and common neonatal problems
- Sudden infant death syndrome and apparent life threatening event
- Fever and serious bacterial illness
- Ear and mastoid disorder in infant and children
- Eye emergencies in infant and children
- The nose, sinuses, mouth and throat disorder
- Neck masses in children
- Stridor, drooling, Wheezing, Pneumonia
- Congenital and acquired heart defects, syncope, dysrhythmias
- Vomiting, diarrhea and dehydration, Fluid and electrolyte therapy
- Acute abdominal pain, Gastrointestinal bleeding in children
- Urinary tract infection, Urologic and gynecologic problems
- Renal, Oncology, hematology, metabolic emergencies, Sickle cell

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disease, diabetes

- Headache, Altered mental status, Seizures
- Musculoskeletal disorders in children
- Rashes in infants and children
- The child with special health care needs, Behavioral disorder in children

11. Infectious Diseases-

- Sepsis, Soft Tissue Infections, Sexually Transmitted Diseases, Serious Viral Infections
- Human Immunodeficiency Virus Infection
- Endocarditis, Tetanus, Rabies, Malaria
- Foodborne and Waterborne Diseases, Zoonotic Infections, World Travelers
- Occupational Exposures, Infection Control, and Standard Precautions

12. Neurology-

- Headache, Spontaneous Subarachnoid and Intracerebral Hemorrhage
- Stroke Syndromes, Altered Mental Status and Coma, Ataxia and Gait Disturbances, Vertigo and Dizziness, Seizures and Status Epilepticus in Adults
- Acute Peripheral Neurologic Lesions, Chronic Neurologic Disorders
- Central Nervous System and Spinal Infections
- Central Nervous System Procedures and Devices

13. Toxicology and Environmental Injuries-

- General Management of Poisoned Patients
- Drugs (Cyclic Antidepressants, Atypical Antidepressants, Serotonin Reuptake Inhibitors and Serotonin Syndrome, Monoamine Oxidase Inhibitors, Antipsychotics, Lithium, Barbiturates, Benzodiazepines, Nonbenzodiazepine Sedatives, Digitalis Glycosides, Beta-Blockers, Calcium Channel Blockers, Antihypertensive, Anticonvulsants, Antimicrobials)
- Alcohols, Methylxanthines and Nicotine
- Opioids, Cocaine, Methamphetamine and Other Amphetamines, Hallucinogens
- Salicylates, Acetaminophen, Nonsteroidal Anti-Inflammatory Drugs
- Iron, Metals and Metalloids
- Hydrocarbons and Volatile Substances, Caustics, Pesticides, Anticholinergics
- Industrial Toxins, Vitamins and Herbals

- Dyshemoglobinemias
- Cold Injuries, Heat Emergencies
- Bites and Stings, Snake Bite
- Trauma and Envenomation's from Marine Fauna
- Diving disorder, High-Altitude disorder
- Drowning, Thermal and Chemical Burns
- Electrical and Lightning Injuries
- Mushroom Poisoning, Poisonous Plants
- Carbon Monoxide

14. Endocrine Emergencies-

- Type 1 and Type 2 Diabetes Mellitus, Diabetic Ketoacidosis, Ketoacidotic syndromes, Hyperosmolar Hyperglycemic State
- Hypothyroidism, Myxedema Crisis, Hyperthyroidism, Thyroid Storm, Adrenal Insufficiency and Adrenal Crisis

15. Hematologic and Oncologic Emergencies-

- Anemia, polycythemia, Hemostasis, Acquired Bleeding Disorders, Clotting Disorders, Hemophilias and Von Willebrand Disease, Sickle Cell Disease and Hereditary Hemolytic Anemias, Acquired Hemolytic Anemia, Transfusion Therapy
- Thrombotics and Antithrombotics
- Emergency Complications of Malignancy

16. Polytrauma and Orthopedic Injuries-

- Trauma in Adults, elderly, Paediatrics, pregnancy
- Trauma to : Head, Spinal, Face, Neck, Pulmonary, Cardiac, Abdominal, Flank and Buttocks, Genitourinary and Extremities
- Initial Evaluation and Management of Orthopedic Injuries
- Injuries to upper limbs, lower limbs pelvis
- Compartment Syndrome

17. Musculoskeletal Disorders-

- Neck, Back, Shoulder Pain, Hip and Knee Pain
- Emergencies in Systemic Rheumatic Diseases
- Non Traumatic Disorders of the Hand
- Joints and Bursa
- Soft Tissue Problems of the Foot

18. Obstetrics and Gynecology-

- Abnormal uterine bleeding, Abdominal and pelvic pain in the nonpregnant female, Ectopic pregnancy and emergencies in the first 20 weeks of pregnancy

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- Normal pregnancy, Emergencies after 20 weeks of pregnancy and the postpartum period, Emergency delivery, Co morbid disorder in pregnancy
- Vulvovaginitis, Pelvic inflammatory disease
- Breast disorder
- Complication of gynecologic procedures

19. Psychosocial Disorders-

- Mental Health disorder: ED evaluation
- Mental Health disorder of elderly
- Acute Agitation
- Mood and Anxiety
- Psychoses
- Eating and substance use disorder

20. Others-

- Eyes, Ears, Nose, Throat, and Oral Surgery
- Skin Disorders
- Abuse and Assault, Injection Drug Users, the Mentally Retarded Adult
- The Transplant Patient, the Morbidly Obese Patient, Palliative Care
- Legal Issues in Emergency Medicine, Death notification
- Military Medicine

→ The question paper may be prepared by including questions from each section.

HoD

Emergency Medicine



GOVERNMENT OF JAMMU & KASHMIR
SHER-I-KASHMIR INSTITUTE OF MEDICAL SCIENCES
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**Syllabus for Assistant Professor Posts of
the Department of Endocrinology,
SKIMS, SOURA.**

Syllabus for the specialty of ENDOCRINOLOGY

A. General Endocrinology

1. Hormone transport in circulation
2. Regulation of hormone secretion
3. Hormone action: Receptor types, signalling, receptor regulation of transcription
4. Genetic principles and genetics of Endocrinology
5. Immunological and nonimmunological laboratory techniques for recognition of endocrine diseases.

B. Neuroendocrinology (Hypothalamus and Pituitary)

1. Neural control of endocrine secretion
2. Hypothalamic- pituitary unit: development and anatomical organisation
3. Hypothalamic hormones and neuroendocrine axes, TRH, CRH, GHRH, Somatostatin, prolactin- regulating factors, GnRH
4. Neuroendocrine diseases (hypothalamic hormone deficiency, disorders of regulation of GnRH secretion, disorders of regulation of prolactin-regulating factors.
5. Pituitary anatomy, physiology, and diagnostic evaluation
6. Physiology and disorders(hypersecretion and deficient secretion) of pituitary hormone axes(prolactin, GH, ACTH, gonadotrophins, TSH)
7. Developmental, genetic, and acquired causes of pituitary failure
8. Pituitary adenomas and masses: epidemiology, classifications,pathogenesis, genetic bases,clinical evaluation, imaging, hormonal assessment and management.

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Syllabus for the specialty of ENDOCRINOLOGY

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5. Pituitary anatomy, physiology, and diagnostic evaluation
6. Physiology and disorders(hypersecretion and deficient secretion) of pituitary hormone axes(prolactin, GH, ACTH, gonadotrophins, TSH)
7. Developmental, genetic, and acquired causes of pituitary failure
8. Pituitary adenomas and masses: epidemiology, classifications,pathogenesis, genetic bases,clinical evaluation, imaging, hormonal assessment and management
9. Prolactinomas: Epidemiology, pathology and pathogenesis, clinical, hormonal, and imaging evaluation, associated tumor syndromes, treatments and their complications

10. Nonfunctioning pituitary adenomas: presentations, endocrine manifestations, natural history, and treatment approaches
11. Gonadotrophin-secreting pituitary adenomas: Epidemiology, presentation, and management
12. GH-secreting pituitary adenomas: epidemiology, pathogenesis, associated syndromes, morbidity and mortality, clinical presentations, endocrine complications, diagnosis and management options and strategies
13. TSH-secreting adenomas: epidemiology, pathology, presentations, diagnosis, and management options
14. Posterior pituitary: anatomy, physiological regulation, diabetes insipidus and other polyuric syndromes, syndrome of inappropriate diuresis, syndrome of inappropriate antidiuresis

C. Thyroid

1. Anatomy and histology of thyroid, iodine and the synthesis and secretion of thyroid hormones, storage and release of thyroid hormones, plasma transport of thyroid hormones and metabolism of thyroid hormones.
2. Mechanism of thyroid hormone action and regulation of thyroid function
3. Pregnancy, aging, and fasting and illness and thyroid function
4. Methods of assessment of thyroid structure and function
5. Hyperthyroidism: Etiologies, pathogenesises, associated syndromes, clinical presentations, syndromic and etiologic diagnosis, treatment modalities and long term outcomes.
6. Hypothyroidism and thyroiditis: Etiologies, pathogenesises, associated syndromes, clinical presentations, syndromic and etiologic diagnosis, treatment modalities and long term outcomes.
7. Thyroid neoplasia (Diffuse nontoxic goiter, nodular thyroid disease, and thyroid malignancies): Presentations, imaging, scintigraphy, cytology, natural history, treatment approaches and long term follow up and outcomes
8. Thyroid crises: thyroid storm, myxedema coma

D. Adrenal

1. Anatomy and development of adrenal cortex, adrenal steroids, steroidogenesis and its control, glucocorticoid hormone action, glucocorticoid effects, therapeutic corticosteroids
2. Adrenocortical diseases: Cushing's syndrome, adrenal insufficiency, congenital adrenal hyperplasia, primary mineralocorticoid excess syndromes, adrenal incidentalomas, adrenal adenomas, adrenal malignancies
3. Adrenal dependent hypertension: pheochromocytoma, primary aldosteronism, cortisol resistance, Cushing's syndrome, congenital adrenal hyperplasia, hyperdeoxycorticosteronism

E. Physiology and pathology of female reproductive axis.

1. Reproductive functions of hypothalamus, anterior pituitary, and ovary: mechanisms, mediators, and synchronisation, folliculogenesis, ovarian steroidogenesis
2. Approaching a woman with reproductive dysfunction: clinical assessment and laboratory evaluation
3. Chronic anovulation: hypothalamic anovulation, hyperprolactinemia, androgen excess, premature ovarian insufficiency, polycystic ovarian syndrome
4. Hormone dependent gynecologic disorders (endometriosis, leiomyomata)
5. Menopause and its management
6. Hormonal contraception

F. Testicular disorders

1. Testis development, anatomy, and histology, spermatogenesis
2. Physiology of hypothalamo-pituitary-testicular axis.
3. testosterone synthesis, transport, metabolism, actions, and mechanism of action
4. Male hypogonadism: presentations as a function of age, epidemiology, etiologies, diagnosis, treatments, systemic disorders associated with

hypogonadism. Primary versus secondary hypogonadism. Androgen resistance syndromes.

5. Male sexual function and dysfunction

G. Disorders of sex development

1. Development of normal male and female reproductive systems.
2. Classification of DSD
3. Description of the individual disorders underlying the sex chromosome DSDs, 46XY DSDs, 46XX DSDs, and ovotesticular DSD
4. Investigation for DSD

H. Endocrine changes in pregnancy

1. Maternal physiologic and metabolic adaptations to pregnancy
2. Maternal endocrine alterations in pregnancy: Pituitary, thyroid, , parathyroid, pancreas, adrenal, RAS
3. Placental hormone production
4. Endocrinology of fetal development

I. Growth in Children

1. Normal growth: measurement, growth charts, body proportions, parental target height, skeletal maturation, phases of normal growth,
2. IFG and IGFBP systems
3. Regulation of growth
4. Pathologic basis of retarded growth (GH-IGF1 axis disorders, GH insensitivity, abnormal IGF1 and IGF1 receptor signalling, growth disorders outside the GH-IGF1 axis)
5. Pathologic basis of excess growth
6. Evaluation and treatment of growth failure and excess growth

J. Physiology and disorders of puberty

1. Neuroendocrine control of puberty: Pubertal onset, patterns of gonadotrophin secretion,
2. Timing and onset of puberty, determinants of timing of puberty
3. Normal pubertal development
4. Hormonal changes and behavioural changes in puberty
5. Delayed puberty: causes, evaluation and treatments
6. Precocious puberty: types, causes, evaluation, and treatments
7. Induction of puberty in boys and girls

K. Disorders of bone mineral metabolism.

1. Ions and hormones in basic biology of mineral metabolism
2. Hormonal regulation of calcium and phosphate metabolism.
3. PTH, PTHrP, Vitamin D: Production, metabolism, actions and mechanisms
4. Hypercalcemic disorders: PHPT(isolated/syndromic), FHH, Lithium, malignancy associated, and others.
5. Hypocalcemic disorders: Hypoparathyroidism, vitamin D related
6. Disorders of phosphate and magnesium homeostasis
7. Osteoporosis: Burden, morbidity, presentations, evaluation, treatments and monitoring
8. Rickets and osteomalacia: nutritional and non-nutritional

L. Polyendocrine and neoplastic disorders.

1. Endocrine neoplastic syndromes types 1 through 5 and multiple endocrine and other organ neoplasia syndromes
2. Neuroendocrine tumors and disorders

3. Immunoendocrinopathy syndromes: APS 1, APS 2, other polyendocrine deficiency autoimmune syndromes

M. Endocrinology of cancer management and survivorship

1. Fertility preservation during cancer treatment
2. Endocrine effects of cancer treatment

N. Endocrinology of HIV/AIDS

1. Adrenal, gonadal, and thyroid function in HIV/AIDS
2. Fluid and electrolyte perturbations, calcium homeostasis and bone changes,
3. Glucose homeostasis and pancreatic function
4. Lipids and cardiovascular disease in HIV

O. Endocrine disorders of critical illness.

1. Alterations in somatotrope, thyroid, and hypothalamic-pituitary-adrenal axes
2. Insulin resistance and stress hyperglycemia

P. Disorders of carbohydrate and fat metabolism

1. Insulin secretion: neural regulation of beta cell function, beta cell mass, insulin content in beta cell, insulin secretion and plasma insulin, insulin secretion characteristics in vivo, insulin secretion in fasting state and in response to IV glucose and oral stimuli, insulin secretion and insulin sensitivity, genetic influences on insulin secretion, insulin secretion in dysglycemic states
2. Diabetes mellitus: diagnosis and classification, epidemiology,
3. Pathophysiology of type 2 DM: pathogenesis(genetic factors in the development of T2DM, epigenetic risk of DM), insulin signalling (events downstream to insulin receptor phosphorylation, tissue-specific actions of insulin), insulin resistance and the risk of T2DM, role of gut microbiome and metabolome in insulin resistance and DM

4. Management of T2DM: General approaches to management, screening for DM, Glycemic targets during treatment of DM, monitoring glucose control during treatment, self-management education and support (medical nutrition therapy, physical activity and exercise, psychosocial management). Practical considerations like team approach, standardised versus personalised treatment approaches, identification of pathophysiologic subgroups
5. Glucose lowering pharmacotherapy in T2DM: orals (sulfonylureas, glinides, thiazolidinediones, DPP4 inhibitors, alpha glucosidase inhibitors, sodium-glucose transporter inhibitors and others), and injections (insulins, GLP 1 receptor agonists, amylin receptor agonists)
6. Type 1 DM: natural history, epidemiology, pathophysiology (histopathology, beta cell mass, dysfunction & death, pancreatic exocrine abnormalities in T1DM, genetics of T1DM, genetic risk scores, environmental factors, diagnosis, associated disorders, chronic complications, treatment including adjunctive drugs and beta cell replacing therapies, prevention and reversal of T1DM
7. Monogenic diabetes: monogenic diabetes as an opportunity for precision medicine, epidemiology, challenges in diagnosis, genomic variants
8. Complications of diabetes mellitus: mechanisms of hyperglycemia induced damage, diabetic retinopathy and other ocular complications, diabetic nephropathy (natural history, structural lesions in kidney, epidemiology, risk factors, comorbidities and associated complications, prevention and management), diabetic neuropathies, cardiovascular disease, diabetic foot
7. Hypoglycemia in diabetes mellitus and primary hypoglycemic disorders, physiological defences against hypoglycemia, hypoglycemia in infancy and childhood
8. Digitised approaches to diabetes diagnostics and therapeutics: continuous glucose monitoring systems, automated insulin delivery systems
9. Obesity : definitions, epidemiology, body energy homeostasis, energy expenditure, pathogenesis of obesity (genes, environment), metabolically normal obesity, complications stemming from obesity, diagnostic and therapeutic approaches to obesity
10. Disorders of lipoprotein metabolism: lipid biochemistry and metabolism, lipoprotein metabolism, clinical approaches to the diagnosis and treatment of dyslipidemia



GOVERNMENT OF JAMMU & KASHMIR
SHER-I-KASHMIR INSTITUTE OF MEDICAL SCIENCES
SOURA SRINAGAR

**Syllabus for Assistant Professor Posts of
the Department of Gastroenterology,
SKIMS, SOURA.**

Gastroenterology

Curriculum / Syllabus

Basic Sciences

- Immune system of the gastrointestinal tract (GIT) and its importance in various GI disorders
- Molecular biology in relation to the GIT
- Genetic diseases of the GIT and the liver
- Gene therapy
- GI tumors and tumor biology
- Gastrointestinal hormones in health and diseases
- Embryology of the gut, liver, pancreas and congenital anomalies

Miscellaneous

- Upper and lower gastrointestinal bleeding
- Gastrointestinal tuberculosis
- HIV and the GIT, hepatobiliary and pancreatic systems
- GIT and liver in systemic diseases
- Cutaneous manifestations of GI diseases
- Vascular diseases of the GIT
- Gastrointestinal side effects of drugs, especially NSAIDs
- Gastrointestinal symptoms, physiology and interpretation: Nausea, vomiting
- Pain abdomen, Diarrhoea, Constipation, Dysphagia, Jaundice

Esophagus

- Basic anatomy, histology and physiology
- Congenital anomalies
- Motility of the esophagus and motor disorders
- Mechanism of deglutition and dysphasia
- Approach to a patient with dysphasia
- Gastro-oesophageal reflux disease
- Tumours of the oesophagus
- Oesophageal webs, membranes and diverticulum
- Management of benign and malignant oesophageal strictures
- Oesophagus and systemic diseases
- Infectious diseases of the oesophagus
- Foreign bodies in the oesophagus and stomach
- Esophageal perforation



- Drug-induced esophagitis

Stomach

- Anatomy, histology, functions
- Physiology of acid and bicarbonate secretion in health and diseases
- Defense mechanisms against acid and pepsin
- Gastroduodenal motor function in health and disease.
- Gastritis (nonspecific and specific)
- Helicobacter pylori infection
- Peptic ulcer
- Dyspepsia
- Stress and stomach
- Gastric hypersecretory states, including Zollinger Ellison syndrome
- Ulcer complications and their management
- Surgery for a peptic ulcer
- Post-gastrectomy complication
- Bezoars
- Tumours of the stomach
- Diverticuli and hernia of the stomach

Small Intestine

- Anatomy, blood supply, histology
- Motility of the small intestine
- Congenital anomalies
- Normal absorption of the nutrients
- Intestinal electrolyte absorption and secretion
- Malabsorption syndromes
- Pathophysiology, manifestations and approach
- Celiac sprue
- Infection-related diseases
- Intestinal microflora in health and diseases
- Tropical sprue
- Whipple's disease
- Infectious diarrhoea and food poisoning
- Parasitic diseases
- Small intestinal ulcers
- Short bowel syndrome and intestinal transplantation.
- Eosinophilic gastroenteritis
- Food allergies
- Intestinal obstruction and pseudo-obstruction

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- Short bowel syndrome
- Acute appendicitis
- Malrotation of the gut
- Bezoars
- Management of diarrhoea
- GI lymphomas
- Small intestinal tumors
- Small intestinal transplantation

Colon

- Basic anatomy, blood supply, histology and functions
- Motility of the colon and disorders of motility
- Congenital anomalies
- Megacolon
- Constipation
- Colonic pseudo-obstruction
- Fecal incontinence
- Antibiotic-associated diarrhoea
- Inflammatory bowel disease
- Ulcerative colitis
- Crohn's disease
- Indeterminate colitis
- Ileostomies and their management
- Diverticular disease of the colon
- Radiation enterocolitis
- Colonic polyps and polyposis syndromes
- Malignant diseases of the colon
- Other inflammatory diseases of the colon including
- Solitary rectal ulcer syndrome
- Diversion colitis
- Collagenous and microscopic colitis
- Non-specific ulcerations of the colon
- Malakoplakia
- Pneumatosis cystoides intestinalis
- Hemorrhoids
- Diseases of the anorectum

Pancreas

- Anatomy, physiology, blood supply, and developmental anomalies
- Physiology of the pancreatic secretion



- Pancreatic function tests
- Acute pancreatitis
- Recurrent acute pancreatitis
- Chronic pancreatitis
- Malignancies of the pancreas (Exocrine and endocrine)
- Cystic fibrosis and other childhood disorders of the pancreas
- Hereditary pancreatitis
- Pancreatic transplantation

Biliary Tree

- Anatomy, Physiology
- Physiology of bile formation and excretion
- Enterohepatic circulation
- Bilirubin metabolism.
- Approach to a patient with jaundice
- Gallstones, their complications, and management
- Acute a calculous cholecystitis
- Miscellaneous disorders of the gallbladder
- Acute cholangitis
- Benign biliary structure
- Benign and malignant neoplasms of the biliary system.
- Endoscopic management of biliary obstruction.
- Motility and dysmotility of the biliary system and sphincter of Oddi dysfunction
- Congenital diseases of the biliary systems

Liver

- Anatomy, physiology and blood supply
- Functions of the liver
- Microcirculation of the liver
- Liver function tests
- Portal hypertension
- Extrahepatic portosplenic vein obstruction
- Non-cirrhotic portal fibrosis
- Cirrhosis
- Acute viral hepatitis
- Chronic hepatitis
- Fulminant hepatic failure
- Subacute hepatic failure
- Cirrhosis of the liver
- Ascites

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- Hepatorenal syndrome
- Autoimmune liver disease
- Metabolic liver disease
- Sclerosing cholangitis-primary and secondary
- Primary biliary cirrhosis
- Hepatic venous outflow tract obstruction
- Fibrocystic diseases of the liver
- Wilson's disease
- Hemochromatosis
- Liver in porphyria
- Hepatic tumors
- Infections of the liver
- Liver in pregnancy
- Liver in congestive heart failure
- Liver biopsy
- Liver transplantation and artificial liver support
- Non-Alcoholic Steatohepatitis (NASH)
- Metabolic Associated Steatotic Liver Disease (MASLD)

Peritorium and Retroperitoneum

- Ascites
- Chronic peritonitis
- Budd-Chiari syndrome
- Malignant ascites
- Diseases of the retroperitoneum

Nutrition

- Normal nutritional requirements
- Assessment of nutritional status
- Protein energy malnutrition
- Manifestations and management of nutritional deficiency and excess
- Nutritional support in various GI disorders (malabsorption, acute and chronic pancreatitis, inflammatory bowel disease)

Vascular Diseases of the GI Tract: GI Radiology

- Reading and interpreting the common X-ray films, including
- X-ray films of the abdomen
- Barium studies, ultrasound examination
- CT scans, MR scans, angiography and ERCP films

GI Pathology

- Reading and interpreting histological slides of common gastrointestinal and liver diseases.

Endoscopic Equipment & Electrosurgical System

Endoscopic training is an integral part of training in the super specialty of gastroenterology. A person is supposed to know instruments and its application.

- Endoscopes
- Accessories
- Sterilization of endoscopes and accessories
- Electrosurgical instrument
- Keeping of endoscopes and accessories
- Basic Endoscopic procedures, Do's and Don'ts, complications, and management of complications

Recent Advances

- Artificial Intelligence in Endoscopy
- Microbiome based therapies
- Precision oncology in GI Cancers.





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**Syllabus for Assistant Professor Posts of
the Department of Geriatric Medicine,
SKIMS, SOURA.**

SYLLABUS FOR THE POST OF ASSISTANT PROFESSOR (GERIATRIC MEDICINE)

The broad outline of the syllabus is given below:-

A) Basic Sciences: Biology of human ageing, Epidemiology of human ageing, Immunology of human ageing, Effect of ageing on different organs, death.

B) Clinical Geriatrics: General Medicine, Geriatric Medicine, Cardiology, Pulmonary Medicine, Gastroenterology, Endocrinology, Nephrology, Neurology, Rheumatology, Hematology and Oncology.

C) Applied Geriatrics in allied specialities: Orthopedics, Urology, Gynecology, Ophthalmology, ENT, Dentistry, Psychiatry, Pre - and post - anesthetic evaluation and management.

D) Preventive geriatrics: Rehabilitation, end of life care, legal, ethical and economic aspects

The details of the syllabus are outlined herewith:

Basic Sciences :

1. Anatomy
2. Physiology
3. Biochemistry
4. Pharmacology
5. Microbiology
6. Pathology

General Medicine and Psycho-Geriatrics

Introduction to Clinical Medicine:

1. Headache
2. Chest pain
3. Abdominal pain
4. Fever
5. Lassitude and Asthenia
6. Cough
7. Nausea and Vomiting
8. Syncope

Immunological Factors in Disease:

1. Components of immune system
2. Mechanism of the immune response
3. Immune deficiency and lympho-proliferative disorders
4. Types of immune reaction and their relation to disease
5. Suppression of immune reactions and its effects

6. Immunosenescence

7. Inflammaging

Infection and Diseases:

1. Nature of microorganisms

2. Epidemiology and spread of infections

3. Immunity and Immunosenescence

4. Diagnosis and management of infections

5. Short duration fever

6. Pyrexia of unknown origin

Chemotherapy of Infections:

1. Antibiotics

2. Antibiotic stewardship

3. Anti-virals

4. Anti-fungals

Disturbances in Electrolyte and Water Metabolism:

1. Hypernatremia and hyponatremia

2. Hyperkalemia and hypokalemia

3. Calcium-phosphate and magnesium metabolism

4. Disturbances in H⁺ ion concentration

5. Fluid balance

Diseases of the Cardiovascular System:

1. Cardiac Arrhythmias

2. Cardiac failure

3. Valvular Heart Disease

4. Ischemic Heart Disease

5. Pericardial diseases

6. Cardiomyopathies, Myocarditis

7. Atherosclerosis, hypertension

8. Hypertensive heart disease

9. Diseases of the aorta

10. Peripheral Vascular Disease

Diseases of the Respiratory System:

1. Disease of the Upper and Lower Respiratory Tract
2. Bronchial Asthma, chronic Obstructive Pulmonary Disorder (COPD), Cor pulmonale
3. Acute and Chronic Respiratory Failure
4. Interstitial lung diseases
5. Neoplasms of lung – diagnosis and principles of management
6. Diseases of Pleura, Mediastinum and Diaphragm
7. Sleep disorders

Diseases of the Gastrointestinal System:

1. Diseases of the esophagus, Gastro-esophageal Reflux Disorder (GERD)
2. Peptic Ulcer, gastritis and other diseases of the stomach
3. Inflammatory diseases of small and large intestine
4. Diverticulosis
5. Malignancy of stomach, small intestine, colon and rectum
6. Malabsorption syndrome
7. Diseases of the peritoneum
8. Irritable bowel disease
9. Faecal incontinence

Diseases of the Liver and Biliary Tract:

1. Diagnostic procedures in liver disorders
2. Derangement of hepatic/biliary metabolism
3. Acute Hepatitis
4. Chronic hepatitis
5. Cirrhosis of liver
6. Liver Abscess
7. Tumors of liver – diagnosis and principles of management
8. Infiltrative and Metabolic diseases of liver
9. Disorders of Gall Bladder and Bile Duct
10. Ascites

Diseases of the Pancreas:

1. Diagnosis of pancreatic diseases
2. Acute and chronic pancreatitis
3. Tumors of pancreas

Diseases of the Kidney and Urinary System:

1. Acute Renal Failure
2. Chronic Kidney Disease
3. Glomerulonephritis
4. Nephrotic syndrome

5. Vascular diseases of the kidney
6. Infections of the urinary tract
7. Obstructive Uropathy
8. Urinary Incontinence
9. Nephrolithiasis
10. Renal Cell Carcinoma

Diseases of the Endocrine System:

1. Hyperthyroidism and hypothyroidism
2. Hyperparathyroidism and hypoparathyroidism
3. Diabetes Mellitus
4. Hypo-thalamus and pituitary gland
5. Diseases of the Anterior Pituitary
6. Disorders of the neuro-hypophysis
7. Hyperinsulinism /Glucagon and its effects
8. Diseases of the Adrenal Cortex and Medulla
9. Diseases of the testes and ovaries

Diseases of Blood and Blood Forming Organs:

1. Blood formation and destruction
2. Blood groups and transfusion
3. Anemia
4. Leukemia
5. Bone Marrow Failure
6. Myeloproliferative disorders
7. Disorders of platelets
8. Hemorrhagic disorders
9. Abnormal hemoglobins
10. Lymphomas
11. Diseases of Spleen and Reticulo-endothelial system
12. Plasma cell dyscrasias

Diseases of Connective Tissue, Joints and Bones:

1. Rheumatoid Arthritis, including Late Onset Rheumatoid Arthritis (LORA)
2. Ankylosing spondylitis
3. Systemic Lupus Erythematosus
4. Vasculitis
5. Scleroderma

6. Polymyalgia Rheumatica
7. Gout/ Pseudogout
8. Osteoarthritis
9. Diseases of bone - Metabolic and Endocrine
10. Tumors of Bone

Diseases of the Nervous System:

1. Diagnostic methods in Neurology
2. Coma, Altered sensorium
3. Headache
4. Epilepsy
5. Diseases of Cranial Nerves
6. Cerebro-vascular Diseases
7. Diseases of the Spinal Cord
8. Diseases of the Peripheral Nervous System
9. Pyogenic infections of the CNS
10. Viral Infections
11. Multiple Sclerosis and other demyelinating diseases
12. Metabolic and Nutritional diseases of brain
13. Neurodegenerative diseases including Dementia
14. Movement disorders including Parkinson disease
15. Dizziness and vertigo

Diseases of the Skin:

1. Skin lesions commonly seen in the geriatric population
2. Generalized pruritus
3. Pressure ulcers
4. Pigmentation of the skin
5. Disorders of melanin metabolism
6. Photosensitivity
7. Hirsutism and alopecia
8. Cutaneous manifestations of internal malignancy
9. Psoriasis
10. Scabies
11. Infections of the skin

Psycho-Geriatrics:

1. Epidemiology of Mental Disorders in the older person

2. Definition and classification of Psychiatric Disorders

3. Delirium /Acute confusional state

4. Dementia

5. Depression in old age

6. Bipolar disorder

7. Functional psychiatric disorders in old age

8. Personality and behavioral disorders

9. Psychogeriatric service - Principles of treatment

10. Management of psychiatric illness

11. Alcoholism and the older patient

12. Care-giver issues

Geriatrics

General:

1. Demography, world trends

2. Trends in India and developing countries

3. The Aged and Society – past, present and future

4. The evolution of Geriatrics

Gerontology:

1. Ageing changes

2. Theories of ageing

3. Metabolic and structural aspects of ageing

4. Biochemical changes in the normal ageing Brain

5. Ageing in tissues and cells

6. Atherosclerosis and ageing

7. Homeostasis

Geriatrics :

1. How are older patients different?

2. History taking in the older person

3. Physical Examination of the older person

4. Comprehensive Geriatric Assessment (CGA)

5. Geriatric Giants: immobility, instability (falls), incontinence, impaired intellect/memory, frailty, sarcopenia, anorexia of ageing, cognitive impairment, polypharmacy

Investigations in the older person:

1. Concept of normal range

2. How much to investigate?
3. Interpretation of the results

Immunology:

1. Genetic aspects of Immunity and Immunological Diseases
2. Mutation
3. Alternative theories of Ageing
4. Cancer
5. Immunological Surveillance

Nutrition:

1. Recommended daily allowances of nutrients
2. Prevention of nutritional deficiency
3. Nutritional Assessment
4. Nutritional deficiencies in old age
5. Osteomalacia and Vitamin D deficiency
6. Vitamin B12 deficiency
7. Micronutrients

Cardiovascular System:

1. Changes in Physiology and Pathology of cardiovascular system in old age
2. Investigation of Heart Diseases
3. Cardiac Arrhythmias
4. Coronary Artery Disease and Acute Myocardial Infarction
5. Hypertension and Hypertensive Heart Disease
6. Congestive Cardiac Failure
7. Postural Hypotension
8. Valvular Heart Disease
9. Aortic aneurysm
10. Bacterial Endocarditis
11. Peripheral Vascular Disease
12. Deep Venous Thrombosis and Pulmonary Embolism

Endocrine and Metabolic Disorders:

1. Changes with ageing
2. Diabetes Mellitus
3. Diseases of the Pituitary, Parathyroid and Thyroid
4. Obesity
5. Sexual dysfunction

6. Disorders of Sodium, Potassium, Calcium, Magnesium and Zinc
7. Disturbances in Fluid Metabolism

Central Nervous system:

1. The Ageing Brain
2. Vascular lesions of the Central Nervous System
 - ☐ Neurodegenerative disorders including Dementia
 - ☐ Movement disorders including Parkinson disease
 - ☐ Head Trauma
 - ☐ Infections of the Nervous System
 - ☐ Epilepsy
 - ☐ Peripheral Neuropathy
 - ☐ Disorders of Spinal cord and Nerve Roots
 - ☐ Neoplasia

Genitourinary System:

1. Structural changes with ageing
2. Acute and Chronic Renal Failure
3. Infections of the Genito-urinary tract
4. Diseases of the bladder and prostate
5. Urinary Incontinence
6. Ageing changes in the Genital Tract
7. Post-menopausal bleeding
8. Gynecological disorders in the older person

Disorders of the Special Senses:

1. Disorders of the Eye
2. Hearing Disturbances
3. Disturbance of Taste and Smell
4. Dental Problems

Infections in the older persons:

1. Host Defenses - natural barriers
2. White Cell response, immune mechanism
3. Fever- short duration and pyrexia of unknown origin
4. Urinary Infection - diagnosis and treatment
5. Pneumonia - cause, diagnosis and treatment
6. Skin infections
7. Septicemia

8. Bacterial Endocarditis
9. Antibiotics and antibiotic stewardship

Gastro-intestinal system:

1. Changes with age
2. Investigations of the gastro-intestinal tract
3. Disorders of the mouth
4. GERD / Hiatus Hernia
5. Acid Peptic Disease
6. Disease of the Pancreas
7. Diseases of the small Intestine
8. Diseases of the large Intestine
9. Fecal Incontinence
10. GI Malignancy
11. Disease of the liver and Biliary System
12. Constipation – Prevention and Management

Respiratory System:

1. Changes with age
2. Infections of the Respiratory System
3. Bronchial Asthma, Chronic Obstructive Airway Disease, Cor Pulmonale
4. Bronchogenic carcinoma
5. Respiratory Abnormalities in Extra-pulmonary conditions
6. Respiratory Failure

Musculoskeletal System:

1. The ageing joints
2. Degenerative joint disease
3. Gout/ pseudo-gout
4. Rheumatoid Arthritis
5. Infective Arthritis
6. Myositis/ Myopathy
7. Polymyalgia Rheumatica
8. Vasculitis including Temporal Arteritis
9. Fibromyalgia
10. Osteoporosis
11. Osteomalacia

Hematopoietic System:

1. Changes with ageing
2. Anemia
3. Leukemias and Lymphomas
4. Para-proteinaemia
5. Myelodysplastic syndromes
6. Platelet disorders
7. Disorders of Hemostasis

Dermatology:

1. Ageing skin
2. Senile purpura
3. Bed sores
4. Pruritus
5. Cancers/benign lesions
6. Pemphigus/ pemphigoid
7. Leg ulcers

Malignancy in old age:

1. Epidemiology
2. Presentation
3. Early detection and counseling
4. Investigation and principles of management

Pharmacological Aspects of Ageing:

1. Pharmacokinetics
2. Pharmacodynamics
3. Drug selection and dosage
4. Drug interactions
5. Adverse Drug Reactions
6. Drug Compliance
7. Antibiotic stewardship

Surgery in the Older patient:

1. Pre-operative Assessment
2. Anesthesia in old age
3. Surgical Emergencies
4. Elective Surgery
5. Fractures and soft tissue injuries
6. Amputation

7. Post-operative problems and Management

Special Problems:

1. Pressure sore
2. Care of the chronically ill
3. Care of patients with terminal illness
4. Religion and Illness
5. Falls

Critical/Emergency care

1. Oxygen supplementation
2. NIV/Ventilator setting adjustment
3. Fluid balance
4. Electrolyte balance
5. Poisoning
6. Hyperpyrexia / Heat Stroke

Social and Preventive Geriatrics including Rehabilitation, and Advances in Geriatrics, Social Geriatrics:

1. Types of Family - Family structure. – Intergenerational interaction
2. Social changes due to urbanization and industrialization,
3. Isolation, loneliness and dependency - Dependency ratio - Generational equality
4. Role of Government and NGOs in upliftment of socio-economic status of older people.
5. National policies on ageing
6. Geriatric Service for the Elderly in Western Countries and in India -
7. Day Hospital, Day Care Centre, Long Stay Care Institution, Home for the Aged, functions of the Day Hospital - Western model
8. Psycho-geriatric services - structure and facility - Domiciliary assessment and community care
9. Terminal Care Services - social and spiritual problems in Terminally ill
10. Ethical Issues in Geriatric Medicine - Informed Consent
11. Euthanasia - Acts of omission and commission
12. Elder abuse
13. Setting up of a robust promotive/preventive/ rehabilitative program for the older person in the community

Preventive Geriatrics:

1. Preventing Diseases and promoting health in old age - Types of preventive activities - Risk factor management in the older person- screening
2. Health belief model - General Health practices in elderly
3. Exercise in the elderly - Physical and Mental domain - Benefits of Exercise
4. Development of Anticipatory Care and its Rationale - methods of Anticipatory Care
5. Health promotion and Health Education in the Elderly
6. Anti-Ageing interventions

Rehabilitation:

1. The concepts and goals of Rehabilitation
2. Principles of Rehabilitation - Assessment, goals, priorities and monitoring of progress
3. Rehabilitation in old age - Special features in relating to ageing, multimorbidity, expectation of the patient and carers, intercurrent acute illnesses, social and financial support
4. Clinical evaluation of rehabilitation - impairment, disability and handicap (ICF structure)
5. Multidisciplinary team - Team leadership, therapist, physiotherapy, occupational therapy, speech and swallow therapist, social worker, physician and nursing personnel.
6. Self-care evaluation and management of Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL) - Self Care Assessment Tools
7. Aids and appliances
8. Role of the different members of the multidisciplinary team in the process of rehabilitation
9. Contractures and other deleterious effects of immobility
10. Pressure Ulcer - factors, prevention and management
11. Rehabilitation of chronic illnesses in the older person- stroke, CCF, COPD, Arthritis etc.
12. Rehabilitation of specific diseases - Parkinsonism, Paraplegia, Fracture neck of femur, acute and chronic arthritis, lower limb amputation, low back pain
13. Gait assessment and prevention of Falls
14. Organization and effectiveness of rehabilitation services - Community Services
15. Geriatric Units, Day hospital, Day Care Centre, Long Stay Care Institution - role of rehabilitation

Advances in Geriatrics:

1. Alzheimer's Disease
2. Parkinson disease/Ischemic Heart Disease/Stroke/COPD
3. Osteoporosis
4. Urinary Incontinence

5. Falls / Prevention of Fractures
6. Nutrition
7. Frailty and Sarcopenia
8. Liaison services – orthogeriatrics, vascular, surgery etc.
9. Stroke and Memory Clinics
10. Anti-ageing research

End of life care (EOLC):

1. Principles of Palliative Care at EOLC
2. End of Life Care process and pathways

Advanced Directives and Advanced Care Planning

1. Definition of Advance Directives (AD)
2. Writing a Will

Living will – Indian Scenario

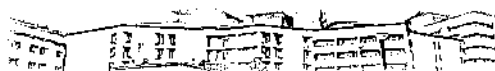


Dr. Umar Hafiz Khan



GOVERNMENT OF JAMMU & KASHMIR
SHER-I-KASHMIR INSTITUTE OF MEDICAL SCIENCES
SOURA SRINAGAR

**Syllabus for Assistant Professor Posts of
the Department of Neonatology,
SKIMS, SOURA.**



A. BASIC SCIENCES

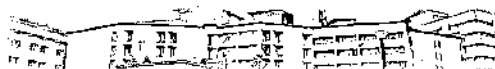
1. Basic Genetics
2. Fetal and Neonatal Immunology
3. Applied Anatomy and Embryology
4. Feto-Placental Physiology
5. Development and Maturation of Lungs, Respiratory Control, Lung Functions, Ventilation, Gas Exchange and Ventilation-Perfusion Relationship
6. Physiology and Development of Cardiovascular System, Developmental Defects, Physiology and Hemodynamics of Congenital Heart Disease
7. Fetal and Intrauterine Growth
8. Development and Maturation of Nervous System, Cerebral Blood Flow and Blood-Brain Barrier
9. Fetal and Neonatal Endocrine Physiology
10. Developmental Pharmacology
11. Developmental Hematology and Bilirubin Metabolism
12. Renal Physiology
13. Physiology of Gastrointestinal Tract, Digestion and Absorption
14. Electrolyte Balance
15. Metabolic Pathways Pertaining to Glucose, Calcium and Magnesium
16. Biochemical Basis of Inborn Errors of Metabolism

B. GENERAL TOPICS

1. Research Methodology
2. Biostatistics
3. Ethics in Perinatology/Neonatology
4. Principles of Education (Objectives, Curriculum, Assessment and Use of Media)

C. PERINATOLOGY

1. Perinatal and Neonatal Mortality, Morbidity and Epidemiology
2. High-Risk Pregnancy: Detection, Monitoring and Management
3. Fetal Monitoring (Clinical, Electronic, Invasive and Non-Invasive)
4. Intrapartum Monitoring and Procedures
5. Assessment of Fetal Risk and Decision for Termination of Pregnancy
6. Diagnosis and Management of Fetal Diseases
7. Medical Diseases Affecting Pregnancy and Fetus
8. Psychological and Ethical Considerations
9. Fetal Interventions
10. Fetal Origin of Adult Disease



D. NEONATAL RESUSCITATION

E. NEONATAL VENTILATION

F. BLOOD GAS AND ACID-BASE DISORDERS

G. NEONATAL ASSESSMENT AND FOLLOW-UP

1. Assessment of Gestation, Neonatal Behaviour and Reflexes
2. Developmental Assessment and Detection of Neuromotor Delay
3. Stimulation Techniques
4. Immunization

I. TRANSPORT OF NEONATES

J. NEONATAL PROCEDURES

K. ORGANIZATION OF NEONATAL CARE

1. Community Neonatology
2. Vital Statistics and Health System
3. Causes of Neonatal and Perinatal Death
4. Neonatal Care Priorities
5. Care at Secondary Level
6. Care at Primary Health Centre
7. Role of Different Health Functionaries
8. National Programmes
9. National Neonatology Forum

H. BODY SYSTEMS

Respiratory System

1. Neonatal Airways
2. Pulmonary Diseases
3. Oxygen Therapy and Monitoring
4. Pulmonary Infections
5. Miscellaneous Pulmonary Disorders



Government of Jammu & Kashmir

Sher-i-Kashmir Institute of Medical Sciences

Department of Pediatrics & Neonatology.

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Tel: 019 2401011, Fax: 0191-2402403/4



Cardiovascular System

1. Fetal Circulation
2. Cardiovascular Examination
3. Congenital Heart Disease
4. Rhythm Disturbances
5. Neonatal Hypertension
6. Shock

Gastrointestinal System

1. Liver and Biliary Disorders
2. Bilirubin Metabolism
3. Neonatal Jaundice
4. Prolonged Hyperbilirubinemia
5. Kernicterus
6. Congenital Malformations
7. Necrotizing Enterocolitis

Nutrition

1. Fetal Nutrition
2. Physiology of Lactation
3. Breastfeeding
4. Lactation Management and Breast Milk Banking
5. Parenteral Nutrition
6. Vitamins and Micronutrients

Renal System

1. Developmental Disorders
2. Renal Functions
3. Fluid and Electrolyte Management
4. Acute Renal Failure

Endocrinology and Metabolism

1. Glucose Disorders
2. Calcium Disorders
3. Magnesium Disorders
4. Thyroid Disorders
5. Adrenal Disorders
6. Ambiguous Genitalia
7. Inborn Errors of Metabolism



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Hematology

1. Physiology
2. Anemia
3. Polycythemia
4. Bleeding and Coagulation Disorders
5. Rh Hemolytic Disease

Neurology

1. Clinical Neurological Assessment
2. EEG/Ultrasound/CT
3. Neonatal Seizures
4. Intracranial Hemorrhage
5. Brain Imaging
6. Hypoxic Ischemic Encephalopathy
7. Neuromuscular Disorders
8. Degenerative Diseases
9. CNS Malformations

Surgery and Orthopedics

1. Neonatal Surgical Conditions
2. Pre- and Post-Operative Care
3. Neonatal Anesthesia
4. Metabolic Changes During Surgery
5. Orthopedic Problems

Neonatal Infections

1. Intrauterine Infections
2. Superficial Infections
3. Diarrhea
4. Septicemia
5. Meningitis
6. Osteomyelitis and Arthritis
7. Pneumonia
8. Perinatal HIV
9. HBV, Candidemia and Other Infections

Neonatal Imaging

1. X-Ray
2. Ultrasound
3. MRI
4. CT Scan

Neonatal Ophthalmology

1. Developmental Aspects
2. Retinopathy of Prematurity
3. Sequelae of Perinatal Infections



GOVERNMENT OF JAMMU & KASHMIR
SHER-I-KASHMIR INSTITUTE OF MEDICAL SCIENCES
SOURA SRINAGAR

**Syllabus for Assistant Professor Posts of
the Department of Nephrology,
SKIMS, SOURA.**

Basic Nephrology

Renal Anatomy,

Renal Physiology

Investigation of Renal Disease

Assessment of Glomerular Filtration Rate

Urinalysis

Point of Care Ultrasound in Nephrology,

Radiologic and Nuclear Imaging in Nephrology,

Kidney Biopsy

Fluid and Electrolyte Disorders

Disorders of Extracellular Volume,

Disorders of Water Metabolism

Disorders of Potassium Metabolism

Disorders of Calcium, Phosphate, and Magnesium Metabolism

Normal Acid-Base Balance

Metabolic Acidosis

Metabolic Alkalosis

Respiratory Acidosis, Respiratory Alkalosis, and Mixed

Acid-Base Disorders

General Nephrology

Glomerular Disease

Introduction to Glomerular Disease: Clinical Presentations

Introduction to Glomerular Disease: Histologic Classification and Pathogenesis

Minimal Change Disease

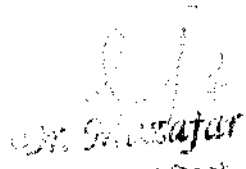
Primary and Secondary (Nongenetic) Causes of Focal and Segmental Glomerulosclerosis

Inherited Causes of Nephrotic Syndrome

Membranous Nephropathy

Immunoglobulin-Mediated Glomerulonephritis with a Membranoproliferative Pattern of Injury and

Cryoglobulinemic Glomerulonephritis


Dr. Shafiqur M. Wasi
Prof. & Head Dept. of Nephrology
SKIMS Soura Sanganar (India)

Glomerulonephritis Associated with Complement Disorders

Immunoglobulin A Nephropathy and Immunoglobulin A Vasculitis (Henoch-Schönlein Purpura)

Anti-Glomerular Basement Membrane Disease and Goodpasture Disease

Renal and Systemic Vasculitis

Lupus Nephritis

Monoclonal Immunoglobulin-Related Glomerular

Diseases and Renal Amyloidosis

Rare Glomerular Disorders

Thrombotic Microangiopathies, Including Hemolytic Uremic Syndrome

Diabetic Kidney Disease

Pathogenesis, Clinical Manifestations, and Natural History of Diabetic Kidney Disease

Prevention and Treatment of Diabetic Kidney Disease

Management of Patients with Diabetes and Chronic Kidney Disease

Hypertension

Normal Blood Pressure Control and the Evaluation of Hypertension

Primary Hypertension

Nonpharmacologic Prevention and Treatment of Hypertension

Pharmacologic Treatment of Hypertension

Evaluation and Treatment of Hypertensive Urgencies and Emergencies

Endocrine Causes of Hypertension: Aldosterone

Other Endocrine Causes of Hypertension

Neurogenic Hypertension, Including Hypertension Associated With Stroke or Spinal Cord Injury

Blood Pressure Management in the Dialysis Patient

Renovascular Disease

Renovascular Hypertension, Atherosclerotic Renal Vascular Disease, and Thromboembolic Kidney Disease,

Pregnancy and Renal Disease

Kidney Physiology and Complications in Normal Pregnancy

Pregnancy With Preexisting Kidney Disease


Dr. Muzafar M. Wani
Prof. & Head, Dept. of Nephrology
SKIMS, Srinagar, Jammu & Kashmir (India)

Hereditary and Congenital Diseases of the Kidney

Autosomal Dominant Polycystic Kidney Disease

Other Cystic Kidney Diseases

Alport Syndrome and Other Familial Glomerular Syndromes

Inherited Disorders of Sodium and Water Handling

Fanconi Syndrome and Other Proximal Tubule Disorders

Sickle Cell Diseases and the Kidney

Congenital Anomalies of the Kidney and Urinary Tract

Infectious Diseases and the Kidney

Urinary Tract Infections in Adults

Tuberculosis of the Urinary Tract

Fungal Infections of the Urinary Tract

The Kidney in Schistosomiasis

Glomerular Diseases Associated With Infection

Human Immuno-deficiency Virus Infection and the Kidney

Kidney Diseases Associated With Coronaviruses

Urologic Disorders

Nephrolithiasis and Nephrocalcinosis

Urinary Tract Obstruction

Primary Vesicoureteral Reflux and Reflux Nephropathy,

Urologic Issues for the Nephrologist

Tubulointerstitial and Vascular Diseases

Acute Interstitial Nephritis

Chronic Interstitial Nephritis

Endemic Nephropathies

Renal Disease and Cancer

Oncology: Kidney Disease in Cancer Patients

Myeloma and the Kidney


Dr. S. S. Srinivasan, M.D., FRCPC
Chief, Nephrology Dept. of Medicine
Sri Sankar Srinivasan (1964)

Kidney Disease in Liver, Cardiac, Lung, and Hematopoietic Stem Cell Transplantation

Acute Kidney Injury

Pathophysiology and Etiology of Acute Kidney Injury

Acute Kidney Injury in the Tropics

Diagnosis and Clinical Evaluation of Acute Kidney Injury

Epidemiology and Prognostic Impact of Acute Kidney Injury and Acute Kidney Disease

Prevention and Non-dialytic Management of Acute Kidney Injury

Extracorporeal Therapies for Acute Kidney Injury and Heart Failure

Hepatorenal Syndrome.

Drug Therapy in Kidney Disease

Principles of Drug Therapy, Dosing, and Prescribing in Chronic Kidney Disease and Kidney Replacement Therapy

Common Issues in Prescribing in Kidney Disease and Kidney Replacement Therapy

Herbal and Over-the-Counter Medicines and the Kidney

Chronic Kidney Disease and Uremic Syndrome

Epidemiology of Chronic Kidney Disease and Dialysis

Pathophysiology of Disease Progression in Proteinuric and Nonproteinuric Kidney Disease

Slowing the Progression of Kidney Disease

Clinical Evaluation and Management of Chronic Kidney Disease

Pathogenesis and Risk of Cardiovascular Disease in Chronic Kidney Disease

Practical Management of Cardiovascular Disease in Chronic Kidney Disease

Anemia in Chronic Kidney Disease

Other Blood and Immune Disorders in Chronic Kidney Disease

Bone and Mineral Disorders in Chronic Kidney Disease

Neurologic Complications of Chronic Kidney Disease

Nutrition in Chronic Kidney Disease

Dermatologic Manifestations of Chronic Kidney Disease

Acquired Cystic Kidney Disease and Malignant Neoplasms

Geriatric and Palliative Nephrology



Dialysis and Transplant

Approach to Kidney Replacement Therapy

Vascular Access for Hemodialysis

Diagnostic and Interventional Nephrology

Hemodialysis: Principles and Techniques

Hemodialysis: Dialysis Prescription and Adequacy

Acute Complications During Hemodialysis

Peritoneal Dialysis: Principles, Techniques, and Adequacy

Complications of Peritoneal Dialysis

Extracorporeal Therapies for Drug Overdose and Poisoning

Plasma Exchange

Transplantation

Immunologic Principles in Kidney Transplantation

Immunosuppressive Medications in Kidney Transplantation

Evaluation and Preoperative Management of Kidney Transplant Recipient and Donor

Kidney Transplantation Surgery

Prophylaxis and Treatment of Kidney Transplant Rejection

Infections and Malignancies in the Kidney Transplant Recipient

Cardiovascular Disease and Metabolic Abnormalities in the Kidney Transplant Recipient

Chronic Allograft Injury

Recurrent Disease in Kidney Transplantation

Outcomes of Kidney Transplantation: Identification, Measures, and Evaluation





GOVERNMENT OF JAMMU & KASHMIR
SHER-I-KASHMIR INSTITUTE OF MEDICAL SCIENCES
SOURA SRINAGAR

**Syllabus for Assistant Professor Posts of
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SKIMS, SOURA.**



GOVERNMENT OF JAMMU & KASHMIR
SHER-I-KASHMIR INSTITUTE OF MEDICAL SCIENCES, SOURA, SRINAGAR
DEPARTMENT OF NEUROLOGY

Syllabus for recruitment to the post of Assistant Professor (Neurology), SKIMS.

1. Approach to the Neurologic patient.

- A. Signs and Symptoms in Neurologic Diagnosis.
- B. Neurologic Examination.

2. Common Problems in Neurology.

- A. Dizziness, Vertigo and Hearing loss
- B. Syncope and Spells.
- C. Seizures and Status Epilepticus
- D. Headache and Facial Pain.
- E. Pain, Numbness and Paresthesias
- F. Visual Disturbances
- G. Delirium
- H. Dementia and Memory Loss
- I. Involuntary Movements
- J. Muscle Weakness, Cramps and Stiffness
- K. Gait Disorders
- L. Acute Stroke
- M. Acute Spinal Cord Syndromes
- N. Focal Mass Lesions
- O. Stupor and Coma
- P. Brain Death

3. Diagnostic Tests

- A. Computed Tomography
- B. Magnetic Resonance Imaging
- C. Positron Emission Tomography and Single-Photon
- D. Neurovascular Ultrasound
- E. Angiography and Endovascular Neuroradiology
- F. Electromyography, Nerve Conduction Studies and Magnetic Stimulation
- G. Autonomic Testing
- H. Vision, Hearing and Balance Testing
- I. Sleep Studies
- J. Neuropsychological Evaluation
- K. Lumbar Puncture and Cerebrospinal Fluid Analysis
- L. Brain, Nerve and Muscle Biopsy
- M. Intracranial Pressure and Neurocritical Care Monitoring
- N. Genetic Testing and DNA Diagnosis

4. Cerebrovascular Diseases:

- A. Acute Ischemic Stroke
- B. Transient Ischemic Attack
- C. Hypoxic-Ischemic Encephalopathy
- D. Intracerebral Hemorrhage
- E. Subarachnoid Hemorrhage
- F. Cerebral Venous and Sinus Thrombosis
- G. Vascular Malformations
- H. Central Nervous System Vasculitis
- I. Posterior Reversible Encephalopathy Syndrome and Other Cerebrovascular Syndromes
- J. Primary and Secondary Stroke Prevention

5. Neurotrauma.

- A. Concussion
- B. Traumatic Brain Injury
- C. Traumatic Spinal Cord Injury
- D. Traumatic Cranial and Peripheral Nerve Injuries

6. Dementia:

- A. Mild Cognitive Impairment
- B. Alzheimer Disease
- C. Frontotemporal Dementia
- D. Lewy Body Dementias
- E. Vascular Dementias

7. Headache and Pain Syndromes

- A. Primary and Secondary Headache Syndromes
- B. Cranial Neuralgias and Facial Pain Disorders
- C. Complex Regional Pain Syndrome
- D. Neuropathic Pain

8. Epilepsy and Paroxysmal Disorders

- A. Epilepsy
- B. Meniere Syndrome, Benign Paroxysmal Positional Vertigo and Vestibular Neuritis.
- C. Transient Global Amnesia

09 . Central Nervous system Infection.

- A. Acute bacterial Meningitis and infective endocarditis.
- B. Brain abscess and parameningeal infections.
- C. Other bacterial central nervous system infections and toxins.
- D. Chronic Meningitis.

- E. Parasitic Infections.
- F. Viral Infections.
- G. HIV and AIDs
- H. Prion diseases

10 .Demyelinating and Inflammatory Diseases.

- A. Multiple Sclerosis and Allied Demyelinating Diseases.
- B. Pontine and Extrapontine Myelinolysis.
- C. Autoimmune Meningitis and Encephalitis
- D. Neurosarcoidosis.

11. Movement Disorders.

- A. Essential Tremor
- B. Tics and Tourette Syndrome
- C. Restless Legs Syndrone
- D. Dystonia
- E. Hemifacial Spasm
- F. Myoclonus
- G. Hereditary and Acquired Ataxias
- H. Tardive Dyskinesia and Neuroleptic Induced syndromes
- I. Choreas
- J. Huntington Disease
- K. Parkinson Disease
- L. Parkinson Plus Syndromes

12. Neuromuscular Diseases

- A. Amyotrophic Lateral Sclerosis and Motor Neuron Diseases
- B. Bell Palsy and Cranial Neuropathies
- C. Acquired and Peripheral Neuropatheis
- D. Inherited Peripheral Neuropathies
- E. Myasthenia Gravis and Disorders of the Neuromuscular Junction
- F. Inflammatory Myopathies
- G. Critical Illness Myopathy and Neuropathy
- H. Periodic Paralysis and Other Channelopathies
- I. Stiff Person Syndrome and Peripheral Nerve and Muscle Hyperexcitability
- J. Metabolic and mitochondrial Myopathies in Adults

13. Neurooncology

- A. Gliomas
- B. Metastatic Tumors

- C. Tumors of the Meninges
- D. Primary Central Nervous System Lymphoma
- E. Pineal Region Tumors
- F. Acoustic Neuroma and other Skull Base Tumors
- G. Spinal Tumors
- H. Paraneoplastic Syndromes
- I. Complications of Cancer Therapy
- 14. Hydrocephalus and Cerebral Edema**
 - A. Hydrocephalus
 - B. Brain Edema and Intracranial Hypertension
 - C. Intracranial Hypotension
- 15. Spinal Cord Disorders**
 - A. Intravertebral Disk Disease and Radiculopathy
 - B. Cervical and lumbar Spinal Stenosis
 - C. Acquired and Hereditary Myelopathies
- 16. Autonomic and Sleep Disturbances**
 - A. Neurogenic Orthostatic Hypotension, Autonomic Failure and Acquired and Familial Autonomic Neuropathy.
 - B. Paroxysmal Sympathetic Hyperactivity after Acute Brain injury.
 - C. Sleep Disorders.
- 17. Systemic Organ Function and the Brain**
 - A. Heart Brain Interactions
 - B. Respiratory Support for Neurologic Diseases
 - C. Endocrine Diseases and the Brain
 - D. Hematologic Diseases and the Brain
 - E. Hepatic Disease and the Brain
 - F. Renal Disease and the Brain
 - G. Gastric and Genitourinary Function and the Brain
 - H. Bone Diseases and the Central Nervous system
 - I. Malnutrition, Malabsorption and other Vitamin Deficiencies
 - J. Neurologic Disease during Pregnancy
 - K. Neurologic Complications of Organ Transplantation
- 18. Neurologic Toxidromes**
 - a. Alcoholism
 - b. Drug Intoxication and withdrawal
 - c. Neurotoxicology
 - d. Radiation Injury
 - e. Electrical and Lightning Injury
 - f. Decompression illness

19. Psychiatry and Neurology

- A. Psychosis
- B. Mood Disorders
- C. Anxiety Disorders, Posttraumatic Stress Disorders and Obsessive Compulsive Disorder
- D. Somatic Symptom Disorders

20. Recovery and End of Life Care

- A. Neurologic Rehabilitation
- B. Ethical and End of Life issues in Neurology.



GOVERNMENT OF JAMMU & KASHMIR
SHER-I-KASHMIR INSTITUTE OF MEDICAL SCIENCES
SOURA SRINAGAR

**Syllabus for Assistant Professor Posts of
the Department of Nuclear Medicine,
SKIMS, SOURA.**

Syllabus for acquiring faculty position in Nuclear Medicine.

1. Instruments for Radiation detection and Measurement.
2. Health Physics Equations & Uses.
3. Nuclear Counting statistics & Calculations.
4. Radioactivity Measurement & Counting Statistics.
5. Calculation involved with Medical Decisions.
6. Tracer Kinetic Modeling.
7. Internal Radiation Dosimetry & Calculations.
8. Principles of Radiation Protection, Personnel Monitoring.
9. Area Monitoring (Personnel & Work Environment).
10. Radioactive Packages & Radioactive waste disposal.
11. Interaction of Radiation with Emphasis on biological System.
12. Cell Survival curves & Cellular Responses.
13. Effects on Nucleic Acids & Radiation Genetics (Hereditary Effects).
14. Whole body Effects of Ionizing Radiation (Embryo & Foetus).
15. Gamma Camera-Basic Principles & QC.
16. SPECT-Basic Principles.
17. Pulse Height Spectrometry.
18. PET- Physics & Basics Principles.
19. Molybdenum (Mo^{99}) Technetium ($\text{Tc}^{99\text{m}}$) Generator.
20. Germanium -68 (Ge^{68}), Gallium – 68 (Ga^{68}) Generator.
21. Strontium (Sr^{82}) Rubidium (Rb^{82}) Generator.
22. Strontium 90 (Sr^{90}) Yttrium 90 (Y^{90}) Generator.
23. Radium 224 (Ra^{224}) Lead 212 (^{212}Pb) Generator.
24. Cyclotron – Basics Principles & Physics.
25. General Physiochemical Properties of Radioactive Compounds.
26. Properties of Radiopharmaceuticals.
27. Radiolabelled Blood Cells & Receptor specific Radionuclide's .
28. Prepared Radiopharmaceuticals.
29. Positron Emitting Radionuclide's.
30. Criteria for the selection of Appropriate Radiopharmaceuticals.
31. In vivo kinetics of Radiopharmaceuticals & Design of Nuclear Pharma.
32. ICRP & AERB
33. Specific Nuclear Medicine Procedures, introduction.
34. Nuclear Oncology.
35. Nuclear Endocrinology.
36. Nuclear neurology.
37. Nuclear Nephrology.
38. Nuclear Cardiology.
39. Nuclear Gastroenterology
40. Skeletal Scintigraphy.

Contd...at page 02

- 41. Radioiodine Therapy.
- 42. Lu – DOTATATE therapy.
- 43. Lu – PSMA Therapy.
- 44. Alpha Therapy
- 45. Theranostics.
- 46. TARE (Trans Arterial Radio embolization).
- 467 Artificial intelligence in Nuclear Medicine
- 48. Synovectomy (Therapeutic).
- 49. Palliation Therapy (Bone Pain)
- 50. Image Quality in Nuclear Medicine.
- 51. Computers in Nuclear Medicine Image Processing.
- 52. Tomographic Reconstruction in Nuclear Medicine.
- 53. SPECT (Recent Advances).
- 54. PET (Recent Advances).
- 55. PET MRI.



GOVERNMENT OF JAMMU & KASHMIR
SHER-I-KASHMIR INSTITUTE OF MEDICAL SCIENCES
SOURA SRINAGAR

**Syllabus for Assistant Professor Posts of
the Department of Paediatric Surgery,
SKIMS, SOURA.**

GOVERNMENT OF JAMMU & KASHMIR
SHER-I-KASHMIR INSTITUTE OF MEDICAL SCIENCES SOURA SRINAGAR
DEPARTMENT OF PAEDIATRIC SURGERY

**SYLLABUS FOR WRITTEN TEST
POST OF ASSISTANT PROFESSOR
PAEDIATRIC SURGERY
SKIMS, SOURA, SRINAGAR**

The following syllabus is prescribed for the written examination for the post of Assistant Professor in Paediatric Surgery.

I. BASIC MEDICAL SCIENCES APPLIED TO PAEDIATRIC SURGERY

- Developmental anatomy and embryology
- Applied and regional anatomy
- Physiology related to children and neonates
- Neonatal physiology, metabolism and acid-base balance
- Respiratory physiology and ventilatory support
- General pathology with emphasis on paediatric surgical conditions
- Pharmacology and pharmacokinetics in neonates and children
- Biochemical and metabolic considerations in paediatric surgery
- Fetal anatomy, physiology and pathology
- Genetics relevant to paediatric surgery

II. GROWTH, DEVELOPMENT AND FETAL MEDICINE

- Growth and developmental assessment
- Fetal medicine
- Diagnosis and management of surgically correctable fetal lesions

III. NEONATAL SURGERY

- Congenital neonatal surgical disorders
- Pre-operative and post-operative neonatal management
- Ventilatory and intensive care support
- Neonatal surgical emergencies

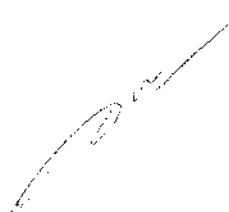
IV. GENERAL PAEDIATRIC SURGERY

- Wound healing
- Infections and sepsis
- Trauma and burns in children
- Abdominal wall defects and hernias
- Umbilical disorders
- Testicular and adrenal disorders
- Vascular malformations
- Hemangiomas and lymphangiomas
- Soft tissue lesions
- Twinning abnormalities

V. GASTROINTESTINAL, HEPATOBILIARY AND PANCREATIC SURGERY

- Congenital anomalies of esophagus, stomach and intestines
- Gastroesophageal reflux disease
- Esophageal strictures and burns
- Meconium ileus
- Intestinal obstruction
- Disorders of intestinal rotation and fixation
- Necrotising enterocolitis
- Short bowel syndrome
- Inflammatory bowel disease
- Peritonitis and intra-abdominal infections
- Portal hypertension
- GI bleeding and ascites
- Anorectal malformations
- Hepatobiliary disorders
- Pancreatic disorders

VI. GENITOURINARY SURGERY

- Congenital anomalies of kidney, ureter, bladder and urethra
 - Obstructive uropathy
 - Vesicoureteric reflux and megaureter
 - Urinary tract infections
 - Urinary lithiasis
 - Functional bladder disorders
 - Hypospadias and epispadias
 - Ambiguous genitalia
 - Female genital tract anomalies
- 

- Urodynamic studies

VII. THORACIC SURGERY

- Chest wall deformities
- Congenital thoracic malformations
- Lung and pleural infections
- Foreign bodies in airway and esophagus
- Diaphragmatic disorders
- Mediastinal disorders
- Pulmonary and mediastinal tumours

VIII. PAEDIATRIC ONCOSURGERY

- Tumours in childhood
- Principles of oncologic surgery
- Biopsies and tumour resections
- Chemotherapy and antineoplastic drugs
- Radiation therapy in childhood malignancies

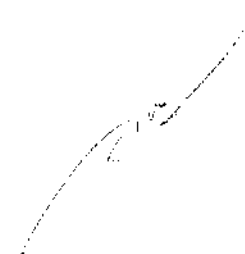
IX. PLASTIC AND RECONSTRUCTIVE SURGERY

- Burn management
- Cleft lip and palate
- Choanal atresia
- Syndactyly
- Skin grafts and flap procedures

X. PAEDIATRIC NEUROSURGERY

- Hydrocephalus
- Craniospinal dysraphism
- Craniofacial deformities

XI. IMAGING, ENDOSCOPY AND MINIMALLY INVASIVE SURGERY

- Ultrasonography
 - Conventional and specialized radiology
 - MRI and nuclear imaging
 - Radiation biology
 - Endoscopy
 - Laparoscopy
 - Surgical staplers
- 

XII. PAEDIATRIC TRAUMA AND CRITICAL CARE

- Paediatric trauma management
- Burns and resuscitation
- Organization of intensive care services
- Monitoring and critical care



GOVERNMENT OF JAMMU & KASHMIR
SHER-I-KASHMIR INSTITUTE OF MEDICAL SCIENCES
SOURA SRINAGAR

**Syllabus for Assistant Professor Posts of
the Department of Plastic Surgery,
SKIMS, SOURA.**

PLASTIC SURGERY

Volume One: Principles

- 1 Plastic surgery and innovation in medicine
- 2 History of reconstructive and aesthetic surgery
- 3 Applying psychology to routine plastic surgery practice
- 4 The role of ethics in plastic surgery and medico-legal issues in plastic surgery
- 5 Business principles for plastic surgeons
- 6 Value-based healthcare
- 7 Digital photography in plastic surgery
- 8 Pre- and intra-operative imaging for plastic surgery
- 9 Patient safety in plastic surgery
- 10 Anesthesia and pain management in plastic surgery
- 11 Evidence-based medicine and health services research in plastic surgery
- 12 Patient-reported outcomes in plastic surgery
- 13 Health services research in plastic surgery
- 14 Principles of cancer management
- 15 Wound healing
- 16 Scar prevention, treatment, and revision
- 17 Skin grafting
- 18 Tissue engineering
- 19 Repair, grafting, and engineering of cartilage
- 20 Repair and grafting of bone
- 21 Repair and grafting of peripheral nerve
- 22 Repair and grafting fat and adipose tissue
- 23 Vascular territories
- 24 Flap physiology, classification, and applications
- 25 Principles and techniques of microvascular surgery
- 26 Tissue expansion and implants
- 27 Principles of radiation therapy
- 28 Lymphedema: pathophysiology and basic science
- 29 Benign and malignant nonmelanocytic tumors of the skin and soft tissue

- 30 Melanoma
- 31 Implants and biomaterials
- 32 Transplantation in plastic surgery
- 33 Technology innovation in plastic surgery: a practical guide for the surgeon innovator
- 34 Robotics in plastic surgery
- 35 Digital technology in plastic surgery
- 36 Aesthetic improvement through noninvasive technologies
- 37 Education and teaching in plastic surgery
- 38 Global plastic surgery
- 39 Gender-affirming surgery

Volume Two: Aesthetic

- 1 Managing the aesthetic surgery patient
- 2 Principles of practice management and social media for cosmetic surgery

Section I: Aesthetic Anesthesia Techniques

- 3 Essential elements of patient safety in aesthetic plastic surgery
- 4 Pain management in plastic surgery
- 5 Anatomic blocks of the face and neck
- 6 Local anesthesia

Section II: Aesthetic Surgery of the Face

- 7 Non-surgical skin care and rejuvenation
- 8.1 Editors' perspective: injectables and non-surgical resurfacing techniques
- 8.2 Injectables and resurfacing techniques: Soft-tissue fillers
- 8.3 Injectables and resurfacing techniques: Botulinum toxin/neurotoxins
- 8.4 Injectables and resurfacing techniques: Lasers in aesthetic surgery
- 8.5 Injectables and resurfacing techniques: Chemical peels
- 8.6 Minimally invasive multimodal facial rejuvenation
- 9.1 Editors' perspective: surgical facial rejuvenation
- 9.2 Facial anatomy and aging
- 9.3 Principles and surgical approaches of facelift
- 9.4 Facelift: Facial rejuvenation with loop sutures: the MACS lift and its derivatives
- 9.5 Facelift: Platysma-SMAS plication
- 9.6 Facelift: Lateral SMASectomy facelift
- 9.7 Facelift: The extended SMAS technique in facial rejuvenation
- 9.8 High SMAS facelift: combined single flap lifting of the jawline, cheek, and midface

- 9.9 The lift-and-fill facelift
- 9.10 Neck rejuvenation
- 9.11 Male facelift
- 9.12 Secondary facelift irregularities and the secondary facelift
- 9.13 Perioral rejuvenation, including chin and genioplasty
- 9.14 Facial feminization
- 10 Editors' perspective: brow and eye
- 11 Forehead rejuvenation
- 12 Endoscopic brow lift
- 13 Blepharoplasty
- 14 Secondary blepharoplasty
- 15 Asian facial cosmetic surgery
- 16 Facial fat grafting
- 17 Editors' perspective: nose
- 18 Nasal analysis and anatomy
- 19 Open technique rhinoplasty
- 20 Closed technique rhinoplasty
- 21 Airway issues and the deviated nose
- 22 Secondary rhinoplasty
- 23 Otoplasty and ear reduction
- 24 Hair restoration

Section III: General Aesthetic Surgery

- 25.1 Editors' perspective: liposuction
- 25.2 Liposuction: a comprehensive review of techniques and safety
- 25.3 Correction of liposuction deformities with the SAFE liposuction technique
- 26 Editors' perspective: abdominal contouring
- 27 Abdominoplasty
- 28 Lipoabdominoplasty with anatomical definition: a new concept in abdominal aesthetic surgery
- 29 Editors' perspective: truncal contouring
- 30 Bra-line back lift
- 31 Belt lipectomy
- 32 Circumferential approaches to truncal contouring in massive weight loss patients: the lower lipo-bodylift
- 33 Circumferential approaches to truncal contouring: autologous buttocks augmentation with purse-string gluteoplasty
- 34 Circumferential approaches to truncal contouring: lower bodylift with autologous gluteal flaps for augmentation and preservation of gluteal contour
- 35.1 Editors' perspective: buttock augmentations

- 35.2 Buttock augmentation with implants
- 35.3 Buttock shaping with fat grafting and liposuction
- 36 Upper limb contouring
- 37 Medial thigh
- 38 Post-bariatric reconstruction
- 39 Energy devices in aesthetic surgery
- 40 Aesthetic genital surgery

Volume Three: Craniofacial, Head and Neck Surgery and Pediatric Surgery

Part 1: Craniofacial, Head and Neck Surgery

- 1 Management of craniomaxillofacial fractures
- 2 Scalp and forehead reconstruction
- 3 Aesthetic nasal reconstruction
- 4 Auricular construction
- 5 Secondary treatment of acquired cranio-orbital deformities
- 6.1 Computerized surgical planning: introduction
- 6.2 Three-dimensional virtual planning in orthognathic surgery
- 6.3 Computerized surgical planning in head and neck reconstruction
- 7 Introduction to post-oncologic reconstruction
- 8 Overview of head and neck soft-tissue and bony tumors
- 9 Post-oncologic midface reconstruction: the Memorial Sloan-Kettering Cancer Center and MD Anderson Cancer Center approaches
- 10 Local flaps for facial coverage
- 11 Lip reconstruction
- 12 Oral cavity, tongue, and mandibular reconstructions
- 13 Hypopharyngeal, esophageal, and neck reconstruction
- 14 Secondary facial reconstruction
- 15 Facial paralysis
- 16 Surgical management of facial pain, including migraines
- 17 Facial feminization

Part 2: Pediatric Surgery

- 18 Embryology of the craniofacial complex

Section I: Clefts

- 19.1 Unilateral cleft lip: introduction
- 19.2 Rotation advancement cheiloplasty

- 19.3 Extended Mohler repair
- 19.4 Anatomic subunit approximation approach to unilateral cleft lip repair
- 20 Repair of bilateral cleft lip
- 21.1 Cleft palate: introduction
- 21.2 Straight line repair with intravelar veloplasty (IVVP)
- 21.3 Double opposing Z-palatoplasty
- 21.4 Buccal myomucosal flap palate repair
- 21.5 The buccal fat pad flap
- 21.6 Oral fistula closure
- 21.7 Alveolar clefts
- 21.8 Orthodontics in cleft lip and palate management
- 21.9 Velopharyngeal dysfunction
- 21.10 Secondary deformities of the cleft lip, nose, and palate
- 21.11 Cleft and craniofacial orthognathic surgery

Section II: Craniofacial

- 22 Pediatric facial fractures
- 23 Orbital hypertelorism
- 24 Craniofacial clefts
- 25.1 Craniosynostosis: introduction
- 25.2 Nonsyndromic craniosynostosis
- 25.3 Multisutural syndromic synostosis
- 25.4 Neurosurgical and developmental issues in craniosynostosis
- 26 Craniofacial microsomia
- 27 Idiopathic progressive hemifacial atrophy
- 28 Robin sequence
- 29 Treacher Collins syndrome

Section III: Pediatrics

- 30 Congenital melanocytic nevi
- 31 Vascular anomalies
- 32 Pediatric chest and trunk deformities
- 33 Pediatric tumors
- 34 Conjoined twins

Volume Four: Lower Extremity, Trunk and Burns

- 1 Comprehensive lower extremity anatomy

Section I: Lower Extremity Surgery

- 3.1 Lymphedema: introduction and editors' perspective
- 3.2 Imaging modalities for diagnosis and treatment of lymphedema
- 3.3 Lymphaticovenular bypass
- 3.4 Vascularized lymph node transplant
- 3.5 Debulking strategies and procedures: liposuction of leg lymphedema
- 3.6 Debulking strategies and procedures: excision
- 4 Lower extremity sarcoma reconstruction
- 5 Reconstructive surgery: lower extremity coverage
- 6.1 Diagnosis, treatment, and prevention of lower extremity pain
- 6.2 Targeted muscle reinnervation in the lower extremity
- 6.3 Lower extremity pain: regenerative peripheral nerve interfaces
- 7 Skeletal reconstruction
- 8 Foot reconstruction
- 9.1 Diabetic foot: introduction
- 9.2 Diabetic foot: management of wounds and considerations in biomechanics and amputations
- 9.3 Diabetic foot: management of vascularity and considerations in soft-tissue reconstruction

Section II: Trunk, Perineum, and Transgender

- 10 Trunk anatomy
- 11 Reconstruction of the chest
- 12 Reconstruction of the posterior trunk
- 13 Abdominal wall reconstruction
- 14.1 Gender confirmation surgery: diagnosis and management
- 14.2 Gender confirmation surgery, male to female: vaginoplasty
- 14.3 Gender affirmation surgery, female to male: phalloplasty; and correction of male genital defects
- 14.4 Breast, chest wall, and facial considerations in gender affirmation
- 15 Reconstruction of acquired vaginal defects
- 16 Pressure sores
- 17 Perineal reconstruction

Section III: Burn Surgery

- 18 Burn, chemical, and electrical injuries
- 19 Extremity burn reconstruction
- 20 Management of the burned face and neck
- 21 Pediatric burns

Volume Five: Breast

Section I: Aesthetic Breast Surgery

- 1 Preoperative assessment and planning of the aesthetic breast patient
- 2 Current status of breast implants
- 3 Primary breast augmentation with implants
- 4 Autologous fat transfer: fundamental principles and application for breast augmentation
- 5 Augmentation mastopexy
- 6 Mastopexy after massive weight loss
- 7 Prevention and management of complications following breast augmentation and mastopexy
- 8 Short scar breast reduction
- 9 Reduction mammoplasty with inverted-T techniques
- 10 Breast implant illness: diagnosis and management
- 11 Breast implant-associated anaplastic large cell lymphoma (BIA-ALCL): diagnosis and management
- 12 A critical analysis of irrigation solutions in breast surgery
- 13 Imaging and surveillance in patients with breast implants
- 14 Breast implant explantation: indications and strategies to optimize aesthetic outcomes
- 15 Management strategies for gynecomastia
- 16 Management options for gender affirmation surgery of the breast

Section II: Reconstructive Breast Surgery

- 17 Preoperative evaluation and planning for breast reconstruction following mastectomy
- 18 Perfusion assessment techniques following mastectomy and reconstruction
- 19 Introduction to prosthetic breast reconstruction
- 20 One- and two-stage prepectoral reconstruction with prosthetic devices
- 21 One-stage dual-plane reconstruction with prosthetic devices
- 22 Two-stage dual-plane reconstruction with prosthetic devices
- 23 Two-stage prosthetic reconstruction with total muscle coverage
- 24 Skin reduction using "smile mastopexy" technique in breast reconstruction
- 25 Management of complications of prosthetic breast reconstruction
- 26 Secondary refinement procedures following prosthetic breast reconstruction
- 27 Introduction to autologous breast reconstruction with abdominal free flaps
- 28 Breast reconstruction with the pedicle TRAM flap
- 29 Breast reconstruction with the latissimus dorsi flap
- 30 Breast reconstruction with the DIEP flap
- 31 Breast reconstruction with the free TRAM flap
- 32 Breast reconstruction with the superficial inferior epigastric artery (SIEA) flap

- 33 Introduction to autologous reconstruction with alternative free flaps
- 34 Gluteal free flaps for breast reconstruction
- 35 Autologous breast reconstruction with medial thigh flaps
- 36 Autologous breast reconstruction with the profunda artery perforator (PAP) flap
- 37 Autologous reconstruction with the lumbar artery perforator (LAP) free flap
- 38 Hybrid breast reconstruction: combining flaps and implants
- 39 Innervation of autologous flaps
- 40 Stacked and conjoined flaps
- 41 Management of complications following autologous breast reconstruction
- 42 Enhanced recovery after surgery (ERAS) protocols in breast surgery: techniques and outcomes
- 43 Secondary procedures following autologous reconstruction
- 44 Introduction to oncoplastic breast surgery
- 45 Partial breast reconstruction using reduction and mastopexy techniques
- 46 Oncoplastic breast reconstruction: local flap techniques
- 47 Surgical and non-surgical management of breast cancer-related lymphedema
- 48 Breast reconstruction and radiotherapy: indications, techniques, and outcomes
- 49 Robotic-assisted autologous breast reconstruction
- 50 Total breast reconstruction by external vacuum expansion (EVE) and autologous fat transfer (AFT)
- 51 Current options for nipple reconstruction

Volume Six: Hand and Upper Extremity

Introduction: Plastic surgery contributions to hand surgery

Section I: Principles of Hand Surgery

- 1 Anatomy and biomechanics of the hand
- 2 Examination of the upper extremity
- 3 Diagnostic imaging of the hand and wrist
- 4 Anesthesia for upper extremity surgery
- 5 Principles of internal fixation

Section II: Trauma Reconstruction

- 6 Nail and fingertip reconstruction
- 7 Hand fractures and joint injuries
- 8 Fractures and dislocations of the wrist and distal radius
- 9 Flexor tendon injuries and reconstruction
- 10 Extensor tendon injuries
- 11 Replantation

- 12 Reconstructive surgery of the mutilated hand
- 13 Thumb reconstruction: Non-microsurgical techniques
- 14 Thumb reconstruction: Microsurgical techniques

Section III: Specific Disorders

- 15 Infections of the hand
- 16 Tumors of the hand
- 17 Dupuytren's disease
- 18 Osteoarthritis in the hand and wrist
- 19 Rheumatologic conditions of the hand and wrist
- 20 Occupational disorders of the hand

Section IV: Nerve Disorders

- 21 Nerve entrapment syndromes
- 22 Peripheral nerve repair and reconstruction
- 23 Brachial plexus injuries: adult and pediatric
- 24 Tetraplegia
- 25 Tendon transfers
- 26 Nerve transfers
- 27 Free-functioning muscle transfer

Section V: Challenging Disorders

- 28 The ischemic hand
- 29 The spastic hand
- 30 The stiff hand
- 31 The painful hand

Section VI: Congenital Disorders

- 32 Congenital hand I: Embryology, classification, and principles
- 33 Congenital hand II: Malformations – whole limb
- 34 Congenital hand III: Malformations – abnormal axis differentiation – hand plate: proximodistal and radioulnar
- 35 Congenital hand IV: Malformations – abnormal axis differentiation – hand plate: unspecified axis
- 36 Congenital hand V: Deformations and dysplasias – variant growth
- 37 Congenital hand VI: Dysplasias – tumorous conditions
- 38 Congenital hand VII: Dysplasias – congenital contractures
- 39 Growth considerations in the pediatric upper extremity

Section VII: New Directions

- 40 Treatment of the upper extremity amputee
- 41 Upper extremity composite allotransplantation
- 42 Aesthetic hand surgery
- 43 Hand therapy



GOVERNMENT OF JAMMU & KASHMIR
SHER-I-KASHMIR INSTITUTE OF MEDICAL SCIENCES
SOURA SRINAGAR

**Syllabus for Assistant Professor Posts of
the Department of Radio-diagnosis &
Imaging,
SKIMS, SOURA.**

Topics:

A – Basic Sciences & Radiation Physics

- Anatomy: Cross-sectional, radiological, embryology on CT/MRI
- Physics: X-ray tubes, generators, digital radiography, fluoroscopy, CT, MRI physics
- Radiation: Biology, hazards, dosimetry, protection, AERB norms, ALARA
- Contrast: Types, pharmacology, adverse reactions, treatment
- QA & IT: PACS, RIS, DICOM, teleradiology, PC-PNDT Act
- Research: Biostatistics, methodology, ethics

B– Chest, CVS, MSK, Breast

- Chest: X-ray, HRCT, TB, ILD, tumors, mediastinal masses
- CVS: Cardiac X-ray, CT coronary angiography, cardiac MRI, congenital heart disease
- MSK: Trauma, bone tumors, infections, arthritis, MRI of joints/spine
- Breast: Mammography, tomosynthesis, USG, MRI, BIRADS, interventions

C– Abdomen, Urogenital, GIT, Obstetrics & Gynaecology

- GIT: Barium studies, CT/MRI abdomen, liver, pancreas, bowel
- GU: IVU, MCU, CT urography, renal/prostate MRI, adrenal masses
- OBG: Fetal USG – NT scan, anomaly scan, Doppler, gynae masses
- Interventional: USG/CT guided FNAC, biopsy, drainage, nephrostomy, PTBD

D– Neuro, Head-Neck, Pediatrics, Emergency & Recent Advances

- Neuro: CT/MRI brain & spine, stroke, tumors, demyelination, epilepsy protocol
- Head-Neck: PNS, temporal bone, orbit, thyroid, neck spaces
- Pediatrics: Neonatal imaging, congenital anomalies, NAI
- Emergency: Polytrauma CT, FAST, aortic dissection, PE protocol
- Advances: DWI, DTI, fMRI, MRS, perfusion, PET-CT, elastography, AI



GOVERNMENT OF JAMMU & KASHMIR
SHER-I-KASHMIR INSTITUTE OF MEDICAL SCIENCES
SOURA SRINAGAR

**Syllabus for Assistant Professor Posts of
the Department of Respiratory Medicine,
SKIMS, SOURA.**

SYLLABUS FOR THE POST OF ASSISTANT PROFESSOR (RESPIRATORY MEDICINE)

I. Basic Sciences

A. Anatomy and Histology of Respiratory System

1. Development and Anatomy of Respiratory System
2. Applied embryology of lungs, mediastinum and diaphragm
3. Developmental anomalies

B. Physiology and Biochemistry

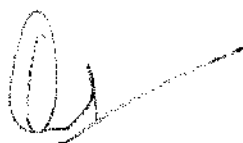
1. Assessment of pulmonary functions
2. Control of ventilation; pulmonary mechanics
3. Ventilation, pulmonary blood flow, gas exchange and transport
4. Non-respiratory metabolic functions of lung
5. Principles of electrocardiography
6. Inhalation kinetics and its implication in aerosol therapy, and sputum induction etc.
7. Acid-base and electrolyte balance
8. Physiology of sleep and its disorders
9. Pulmonary innervation and reflexes
10. Pulmonary defense mechanisms
11. Principles of exercise physiology and testing
12. Physiological changes in pregnancy, high altitude, aging
13. Physiological basis of pulmonary symptoms

C. Microbiology

1. Mycobacterium tuberculosis and other mycobacteria
2. Bacteria causing pulmonary diseases
3. Atypical organisms and respiratory tract infections
4. Anaerobes in pleuropulmonary infections
5. Laboratory diagnosis of non-tubercular infections of respiratory tract
6. Laboratory diagnosis of TB including staining, culture and drug sensitivity testing
7. Virulence and pathogenicity of mycobacteria
8. Respiratory viruses: Viral diseases of the respiratory system and diagnostic methods
9. Respiratory fungi: (i) Classification of fungal diseases of lung: candidiasis,
10. Actinomyces, Nocardiosis, Aspergillosis, Blastomycosis etc. (ii) Laboratory diagnostic procedures in pulmonary mycosis
11. Opportunistic infections in the immuno-compromised individuals
12. HIV and AIDS. Virological aspects, immuno-pathogenesis, diagnosis
13. Parasitic lung diseases.

D. Pathology

1. Acute and chronic inflammation: Pathogenetic mechanisms in pulmonary diseases
2. Pathology aspects of Tuberculosis



3. Pathology aspects of Pneumonias and broncho pulmonary suppuration
4. Chronic bronchitis and emphysema, asthma, other airway diseases
5. Occupational lung diseases including Pneumoconiosis
6. Interstitial lung diseases including sarcoidosis, connective tissue diseases, pulmonary vasculitis syndromes, pulmonary eosinophilias
7. Tumours of the lung, mediastinum and pleura

E. Epidemiology

1. Epidemiological terms and their definitions
2. Epidemiological methods
3. Epidemiology of tuberculosis, pneumoconiosis, asthma, lung cancer, COPD and other pulmonary diseases
4. National Tuberculosis Control Programme and RNTCP; Epidemiological aspects of BCG
5. Epidemiological aspects of pollution-related pulmonary diseases
6. Research methodology, statistics and study designs

F. Allergy and Immunology

1. Various mechanisms of hypersensitivity reactions seen in pulmonary diseases
2. Diagnostic tests in allergic diseases of lung - *in vitro* and *in vivo* tests, bronchial provocation test
3. Immunology of tuberculosis, Sarcoidosis and other diseases with an
4. immunological basis of pathogenesis

G. Pharmacology

1. Pharmacology of antimicrobial drugs
2. Pharmacology of antitubercular drugs
3. Pharmacology of antineoplastic and immunosuppressant drugs
4. Bronchodilator and anti-inflammatory drugs used in pulmonary diseases
5. Drugs used in viral, fungal and parasitic infections
6. Other drugs pharmacokinetics and drugs interaction of commonly used drugs in pulmonary diseases
7. Pharmacovigilance

II. Clinical Pulmonary Medicine

Clinical pulmonary medicine covers the entire range of pulmonary diseases. All aspects of pulmonary diseases including epidemiology, aetiopathogenesis, pathology, clinical features, investigations, differential diagnosis and management are to be covered.

A. Infections

1. Tuberculosis

1. Aetiopathogenesis
2. Diagnostic methods
3. Differential diagnosis
4. Management of pulmonary tuberculosis; RNTCP, DOTS, and DOTS-Plus;
5. International Standards of TB Care



6. Complications in tuberculosis
7. Tuberculosis in children
8. Geriatric tuberculosis
9. Pleural and pericardial effusion and empyema
10. Mycobacteria other than tuberculosis
11. Extrapulmonary tuberculosis
12. HIV and TB; interactions of antitubercular drugs with antiretrovirals
13. Diabetes mellitus and tuberculosis
14. Management of MDR and XDR tuberculosis

2. Non-tuberculous infections of the lungs

1. Approach to a patient with pulmonary infection
2. Community-acquired pneumonia
3. Hospital-associated pneumonia, ventilator-associated pneumonia
4. Unusual and atypical pneumonias including bacterial, viral, fungal and parasitic and rickettsial, anerobic
5. Bronchiectasis, lung abscess and other pulmonary suppurations
6. Acquired immunodeficiency syndrome and opportunistic infections in immuno-compromised host
7. Principles governing use of antibiotics in pulmonary infections
8. Other pneumonias and parasitic infections, Zoonosis

B. Non-infectious Lung Diseases

3. Immunological disorders

1. Immune defence mechanisms of the lung
2. Sarcoidosis
3. Hypersensitivity pneumonitis and lung involvement
4. Eosinophilic pneumonias and tropical eosinophilia
5. Pulmonary vasculitides
6. Connective tissue diseases involving the respiratory system
7. Interstitial lung disease of other etiologies
8. Reactions of the interstitial space to injury, drugs
9. Occupational and environmental pulmonary diseases

4. Other non-infectious disorders of the lungs and airways

1. Aspiration and inhalational (non-occupational) diseases of the lung
2. Drug induced pulmonary diseases
3. Bullous lung disease
4. Uncommon pulmonary diseases (metabolic, immunological, unknown etiology), pulmonary haemorrhagic syndromes
5. Other pulmonary diseases of unknown etiology including PLCH, LAM,
6. PAP, alveolar microlithiasis
7. Cystic fibrosis and disorders of ciliary motility
8. Obesity-related pulmonary disorders



10. Upper airways obstruction syndromes
11. Occupational lung diseases and pneumoconiosis
12. Air-pollution induced diseases, toxic lung and other inhalational injuries
13. Health hazards of smoking
14. Drug-induced lung diseases
- 15.

5. Pulmonary Circulatory disorders

1. Pulmonary hypertension and cor pulmonale
2. Pulmonary edema
3. Pulmonary thromboembolic diseases and infarction
4. Cardiac problems in a pulmonary patient and pulmonary complications produced by cardiac diseases

6. Obstructive diseases of the lungs

1. Asthma including allergic bronchopulmonary aspergillosis, specific allergen immunotherapy and immunomodulation
2. Chronic obstructive lung disease and diseases of small airways
3. Special aspects of management including Long term oxygen therapy, Inhalation therapy and Pulmonary rehabilitation

7. Tumors of the lungs

1. Comprehensive knowledge of neoplastic and non-neoplastic diseases of lung including epidemiology, natural history, staging, and principles of treatment (medical, surgical, and radiation)
2. Solitary pulmonary nodule

8. Diseases of the mediastinum

1. Non-neoplastic disorders
2. Benign and malignant (primary and secondary) neoplasms and cysts

9. Disorders of the pleura

1. Pleural dynamics and effusions
2. Non-neoplastic and neoplastic pleural diseases
3. Pneumothorax
4. Pyothorax and broncho-pleural fistula
5. Fibrothorax

10. Critical Care Pulmonary Medicine

1. Management of emergency problems of different pulmonary diseases
2. Adult respiratory distress syndrome
3. Respiratory failure in the patient with obstructive airway disease
4. Respiratory failure in other pulmonary diseases
5. Management of sepsis
6. Respiratory and haemodynamic monitoring in acute respiratory failure
7. Non-invasive and Mechanical ventilation
8. Principles of critical care, diagnosis and management of complications; severity of illness scoring systems



9. Ethical and end-of-life issues in critical care

11. Extra-pulmonary manifestations of pulmonary diseases

12. Sleep-related pulmonary diseases

- 1) Polysomnography
- 2) Sleep apneas
- 3) Other sleep-disordered breathing syndromes

13. Miscellaneous aspects

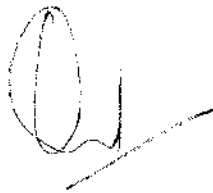
- 1) Diseases of the diaphragm
- 2) Disorders of chest wall
- 3) Obesity-related pulmonary disorders
- 4) Oxygen therapy
- 5) End-of-life care
- 6) Aerospace Medicine
- 7) Pulmonary problems related to special environments (high altitude, diving, miners)
- 8) Assessment of quality of life using questionnaires
- 9) Health impacts of global warming

14. Preventive Pulmonology

- 1) Principles of smoking cessation and smoking cessation strategies
- 2) Cardiopulmonary rehabilitation
- 3) Preventive aspects of pulmonary diseases
- 4) Vaccination in pulmonary diseases

III. Surgical aspects of Pulmonary Medicine

- 1) Pre- and post-operative evaluation and management of thoracic surgical patients
- 2) Chest trauma/trauma related lung dysfunction
- 3) Lung transplantation

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GOVERNMENT OF JAMMU & KASHMIR
SHER-I-KASHMIR INSTITUTE OF MEDICAL SCIENCES
SOURA SRINAGAR

**Syllabus for Assistant Professor Posts of
the Department of Surgical
Gastroenterology & Liver Transplant
Unit,
SKIMS, SOURA.**

ANNEXURE 1

Surgical Gastroenterology Syllabus for Assistant Professor

Esophagus:

Embryology: Developmental anatomy informing the structure and function of esophagus, Developmental defects.

Anatomy: structure, relations, arterial supply and venous drainage, lymphatic drainage and lymph node stations, nerve supply and microscopic anatomy

Physiology: Normal function, normal and disordered swallowing, mechanism of gastro esophageal reflux

Special investigative modalities: Esophageal manometry, pH metery, endoscopic ultrasound. brush cytology, vital staining

Congenital disorders: Trachea-esophageal fistulae, diverticula, cysts, webs, and rings

Acquired conditions: GERD, Barret's esophagus, caustic injuries and strictures, esophageal perforations, esophageal trauma, acquired tracheoesophageal fistula, foreign bodies

Neuromuscular disorders: diverticula, achalasia, hypertensive LES, diffuse esophageal spasm, nutcracker esophagus, ineffectual esophageal motility

Benign tumors and cysts: Leiomyomas, fibromas, schwannomas, retention and duplication cysts

Carcinoma of the esophagus: Epidemiology, symptoms, diagnosis, staging, multimodality treatment and follow up

Operative exposure, procedures: Indications, contraindications, preparation, conduct and post-operative care for

- a. Cervical, thoracic and abdominal incisions for esophageal exposure
- b. Thoracoscopic (VATS), laparoscopic and robotic access
- c. Esophagostomy
- d. Heller's myotomy
- e. Fundoplication
- f. Trans-hiatal esophagectomy
- g. Esophagectomy with or without lymphadenectomy
- h. Esophageal replacement- conduits colon, stomach, small bowel
- i. Enucleation of leiomyomas

Post-operative complications and management: Especially chylothorax, conduit delayed conduit emptying, anastomotic leak, RLN palsy



Stomach and duodenum

Embryology: Developmental anatomy informing the structure and function of stomach and duodenum.

Anatomy: Structure, relations, arterial supply and venous drainage, lymphatic drainage and lymph node stations, nerve supply, microscopic anatomy.

Physiology: Normal function, gastric secretions, pharmacologic regulation of acid secretion, gastric peptides, gastric barrier function, gastro-duodenal motility.

Congenital disorders: Pyloric stenosis, congenital diaphragmatic hernias, diverticulum.

Acquired conditions: Peptic ulcer disease and complications, stress gastritis, gastric hemorrhage and perforation, gastric outlet obstruction, Zollinger Ellison syndrome, H. Pylori in gastric diseases, non-ulcer dyspepsia, caustic injuries and strictures, gastric volvulus, diaphragmatic hernias, gastric trauma, foreign bodies and bezoars.

Benign tumors and cysts: Leiomyomas, fibromas, schwannomas, retention and duplication cysts.

Carcinoma of the stomach: Epidemiology, genetics, symptoms, diagnosis, staging, multimodality treatment and follow up

Gastric lymphoma: Epidemiology, symptoms, diagnosis, staging, multimodality treatment

Gastrointestinal stromal tumors: Epidemiology, symptoms, diagnosis, staging, multimodality treatment

Gastric carcinoids: Epidemiology, symptoms, diagnosis, staging, multimodality treatment

Operative procedures: Both open and Minimal access; indications, contraindications, preparation, conduct and post-operative care for

- a. Vagotomy
- b. Antrectomy
- c. Gastrojejunostomy
- d. emergency procedures for peptic duodenal and gastric perforations
- e. emergency procedures for post-endoscopic/ERCP perforations
- f. partial and total gastric resections with or without lymphadenectomy
- g. reconstruction after gastric resection
- h. sleeve gastrectomy for morbid obesity
- i. Bypass surgery for morbid obesity

Post-operative complications and management: especially post-gastrectomy syndromes-dumping, afferent loop syndrome, efferent loop obstruction, metabolic disturbances, alkaling reflux gastritis, gastroparesis, anastomotic leak.



Small Intestine

Embryology-Especially embryological basis of malrotation, embryological basis of vascular supply and drainage.

Anatomy: Structure, relations, arterial supply and venous drainage, lymphatic drainage, nerve supply, microscopic anatomy.

Physiology: Normal function, intestinal secretions, digestion and absorption, intestinal motility, endocrine function, immune function

Congenital disorders: Duodenal webs, stenoses, intestinal malrotation, hernias, diverticulae, Meckel's diverticulum and its complications.

Acquired conditions: intestinal obstruction and strangulation, inflammatory diseases (Crohn's disease, intestinal tuberculosis, typhoid enteritis), diverticular disease, foreign bodies, enterocutaneous fistula, radiation enteritis, blind loop syndrome, Short bowel syndrome, pneumatosis intestinalis, short bowel syndrome, acute and chronic mesenteric ischemia.

Benign tumors and cysts: leiomyomas, adenomas, lipomas, hemangiomas, Peutz-Jeghers syndrome, retention and duplication cysts.

Malignant tumors: carcinoids, adenocarcinoma, metastatic neoplasms- symptoms, diagnosis, staging, multimodality treatment and follow up

Intestinal lymphoma: epidemiology, symptoms, diagnosis, staging, multimodality treatment

Gastrointestinal stromal tumors: epidemiology, symptoms, diagnosis, staging. multimodality treatment and follow up

Small bowel transplant: history, current status, indications, contraindications, conduct and post-operative management

Operative procedures: both open and minimal access; indications, contraindications, preparation, conduct and post-operative care for

- a. resection and anastomosis- stapled and hand-sewn
- b. creation of ileostomy/jejunostomy
- c. reversal of ileostomy/colostomy
- d. Restoration of bowel continuity.
- e. Ladd's procedure for intestinal malrotation.
- f. Feeding jejunostomy

Post-operative complications and management: care of ileostomy/jejunostomy, stomal dysfunction, management of high output from stoma, management of short bowel syndrome

Large intestine (colon, appendix, rectum and anal canal)

Embryology- developmental anatomy informing the structure and function of large intestine.

Anatomy, anatomy of the colon, appendix, rectum (including the mesorectum), anal canal and pelvic floor-structure, relations, arterial supply and venous drainage, lymphatic drainage, nerve supply, microscopic anatomy. Vascular basis of colo-rectal resections.

Physiology: normal function, recycling of nutrients and the role of colonic flora, pre and probiotics; absorptive function, colonic motility, physiology of defecation and mechanism of continence

Congenital disorders: Hirschsprung disease, duplication cysts

Acquired conditions: obstruction, volvulus and strangulation, inflammatory diseases (ulcerative colitis, Crohn's colitis, infective colitis), acute appendicitis, diverticular disease, foreign bodies, entero-cutaneous fistula, radiation enteritis, blind loop syndrome, colonic ischemia. Perianal abscess and fistula, acute and chronic anal fissure; pilonidal disease, pelvic floor disorders and chronic constipation. Fecal incontinence, recto-vaginal fistula, rectal prolapse, internal prolapse and solitary rectal ulcer syndrome (SRUS), rectocele

Special investigations: colon transit studies, anal manometry, balloon expulsion, defecography, pudendal nerve latency

Benign tumors and cysts: leiomyomas, adenomas, lipomas, hemangiomas, duplication cysts

Polyposis syndromes: Familial Adenomatous Polyposis, HNPCC, Turcot's syndrome, Cowden's disease, familial juvenile polyposis etc.- screening, diagnosis, management including counseling of family members

Colo-rectal cancer-epidemiology, genetics, inheritance, symptoms, diagnosis, staging, multimodality treatment, including the management of metastatic disease and follow up

Large Intestinal lymphoma: epidemiology, symptoms, diagnosis, staging, multimodality treatment

Gastrointestinal stromal tumors: epidemiology, symptoms, diagnosis, staging, multimodality treatment

Operative procedures: both open and laparoscopic (MIS), in the elective and emergency setting, indications, contraindications, preparation, conduct and post-operative care for

- a. Colectomy-segmental, total, subtotal
- b. Appendectomy
- c. creation of colostomy
- d. reversal of colostomy
- e. anterior resection, low anterior resection, ultra-low anterior resection
- f. inter-sphincteric resections
- g. abdominoperineal resection
- h. pelvic eventration
- i. sphincter reconstructions
- j. pelvic floor repair
- k. restorative proctocolectomy with pouch-anal anastomosis for ulcerative polypos coli
- l. rectopexy
- m. perineal procedures for rectal prolapse.



- n. hemorrhoidectomy- stapled and classical
- o. lateral anal sphincterotomy
- p. fistulotomy, fistulectomy, seton placement, LIFT,
- q. repair of rectovaginal fistula
- r. basic principles and conduct of related urologic and gynecological issues like ovarian and uterine malignancies, internal fistula, neobladder formation, tumors of the kidney, adrenal and IVC

Post-operative complications and management: care of ileostomy/colostomy; LAR syndrome, pouchitis, incontinence

Liver

Embryology-developmental anatomy informing the structure and function of the liver

Anatomy: functional segmental anatomy of the liver, various nomenclatures, relations, arterial supply and venous drainage, lymphatic drainage, nerve supply, microscopic anatomy including hepatic microcirculation. Anatomical basis of liver resections. Important variations in biliary and vascular anatomy

Physiology: normal function in carbohydrate, lipid and protein metabolism; bile formation and enterohepatic circulation; bilirubin metabolism; vitamin metabolism, role of liver in normal coagulation; metabolism of drugs and toxins; liver regeneration:

Investigations: assessment of liver function- liver function tests, ICG, Scoring systems-Child-Pugh's, MELD, PELD etc

Congenital disorders: biliary atresia, Caroli's disease, inborn errors of metabolism

Infective conditions: pyogenic abscess, amoebic abscess, hydatid cyst, tubercular abscess, fungal abscess, recurrent pyogenic cholangitis; viral hepatitis and acute liver failure

Benign tumors and cysts: liver cell adenomas, focal nodular hyperplasia, hemangiomas, simple liver cyst, polycystic liver disease

Primary malignant tumors- (hepatocellular carcinoma including variants and intra hepatic cholangiocarcinoma), intra-ductal papillary mucinous neoplasm (IPMNB) epidemiology, genetics, inheritance, symptoms, diagnosis, staging, multimodality treatment and follow up

Metastatic tumors: epidemiology, symptoms, diagnosis, and multimodality treatment

Portal hypertension (cirrhotic): epidemiology, presentation and management of esophageal and gastric variceal bleeding.

Portal hypertension (non-cirrhotic): Extra-hepatic portal venous obstruction (EHPVO) non-cirrhotic portal fibrosis (NCPPF); epidemiology, symptomatology, presentation and management.

Hepatic trauma: principles of surgical and non-surgical management

Preoperative optimization of liver function: volume assessment, portal vein emboli preoperative biliary drainage

SBV

Liver transplantation: history, medico-legal considerations, indications and contraindications, organ preservation, immunologic considerations, deceased donor and living related liver transplant, anesthetic and transfusion considerations, technical considerations, complications, post-operative complications, immunosuppression and follow up

Operative procedures: both open and MIS (laparoscopic/Robotic); indications, contraindications, preparation, conduct and post-operative care for

- a. anatomical and non-anatomical, minor and major hepatic resections using various techniques of vascular control, parenchymal transection
- b. open and closed pericystectomy for hydatid disease; partial pericystectomy
- c. donor hepatectomy
- d. recipient hepatectomy
- e. liver transplant
- f. techniques of microvascular anastomosis
- g. Surgery for portal hypertension
 - a. Porto-systemic shunts (porto-caval, meso-caval, proximal splenorenal, distal splenorenal)
 - b. Splenectomy and devascularization
 - c. Devascularization procedures
 - d. Rex shunt

Postoperative complications and management: post-hepatectomy liver failure, bile leak, sepsis, bleed; post-transplant complications- acute and chronic rejection, arterial and venous thrombosis, biliary complications, complications of immunosuppression, GVHD

Gallbladder and biliary tract:

Embryology- developmental anatomy informing the structure and function of gallbladder and bile ducts

Anatomy: anatomy of the gallbladder and extrahepatic bile ducts- relations, arterial supply and venous drainage, lymphatic drainage, nerve supply, microscopic anatomy. Variations in bilio-vascular anatomy and their importance in biliary surgery

Physiology: normal function, role in bile metabolism, gall bladder motility

Special investigations: MRI including MRCP, ERCP, HIDA scans, PTC, endoscopic ultrasound

Congenital disorders: choledochal cysts, biliary atresia, Caroli's disease

Acquired conditions: gallstones and complications (acute cholecystitis, gallbladder perforation, empyema, chronic cholecystitis, XGC, adenomyosis, Mirizzi's syndrome, gallstone ileus, CBD stones, cholangitis), intra-hepatic stones, sclerosing cholangitis

Post cholecystectomy bile duct injuries and benign biliary stricture- epidemiology, prevention, presentation and management



Benign tumors: Gall bladder polyps, polyposis

Gallbladder and biliary cancer- epidemiology, genetics, symptoms, diagnosis, staging, multimodality treatment and follow up. Preoperative preparation and optimization of patients with biliary malignancies.

Operative procedures: both open and laparoscopic, in the elective and emergency setting; indications, contraindications, preparation, conduct and post-operative care for

- a. cholecystectomy
- b. cholecystectomy with CBD exploration and primary closure or T-tube drainage
- c. choledochoduodenostomy
- d. transduodenal sphincteroplasty
- e. hepaticojejunostomy
- f. extended cholecystectomy for gallbladder cancer (enbloc cholecystectomy with liver wedge and lymphadenectomy with or without CBD excision)
- g. extended resections for gallbladder cancer including hepatic resections, pancreatic resections and colectomy
- h. bile duct resection
- i. choledochal cyst excision and Roux-en-Y hepaticojejunostomy
- j. hepaticojejunostomy for post-cholecystectomy benign biliary stricture
- k. hepatic resections with resection of extra-hepatic bile duct for cholangio-carcinoma

Postoperative complications and management: bile leak, sepsis, bleed, post-hepatectomy liver failure

Pancreas

Embryology- developmental anatomy informing the structure and function of pancreas with special reference to pancreas divisum and annular pancreas

Anatomy: anatomy of the pancreas- relations especially to the portal vein and SMA, arterial supply and venous drainage, lymphatic drainage, nerve supply, microscopic anatomy.

Physiology: exocrine and endocrine function and the neurohormonal control of pancreatic secretion

Special investigations: tests of pancreatic function, endoscopic ultrasound, MRCP and ERCP, Octreotide receptor based scans, c-peptide result interpretation

Congenital disorders: pancreas divisum, annular pancreas

Acquired conditions: acute pancreatitis, chronic pancreatitis, autoimmune pancreatitis, groove pancreatitis

Cystic tumors of pancreas: serous cystadenoma, mucinous cystadenoma, intra-duct papillary mucinous neoplasm (IPMN), solid pseudopapillary neoplasms, cystic neuroendocrine tumors.



Neuroendocrine tumors of pancreas

Pancreatic cancer- epidemiology, genetics, symptoms, diagnosis, staging, multimodality treatment and follow up

Pancreatic trauma: principles of surgical and non-surgical management

Pancreatic transplant : indications, contraindications, procedure, post operative complications, and current status

Operative procedures: both open and MIS (laparoscopic/Robotic), in the elective and emergency setting; indications, contraindications, preparation, conduct and post-operative care

- a. Necrosectomy – open and VARD
- b. Lateral pancreatojejunostomy
- c. Frey's procedure
- d. Distal pancreatectomy- with or without spleen preservation
- e. Pancreatoduodenectomy – classical and pylorus preserving/pylorus resecting
- f. Vascular resections and reconstruction in pancreatoduodenectomy
- g. RAMPS in pancreatic cancer

Post-operative complications and management: especially post-pancreatectomy hemorrhage, pancreatic leak and fistula, delayed gastric emptying, bile leak and sepsis.

Spleen:

Embryology: developmental anatomy informing the structure and function of spleen

Anatomy: relations, arterial supply and venous drainage, lymphatic drainage, nerve supply, microscopic anatomy.

Physiology: splenic function relating to hematopoiesis, immune functions, defense and cleansing

Benign cysts and tumors: parasitic and non-parasitic cysts, pseudocysts, splenic abscess

Hematologic indications for splenectomy: ITP, hereditary spherocytosis, hemolytic anemias, sickle cell disease and thalassemia; leukemias

Malignant tumors: lymphomas, hemangiosarcomas, lymphangiosarcomas, metastases

Splenic trauma: principles of surgical and non-surgical management

Operative procedures: both open and MIS (laparoscopic and robotic), in the elective and emergency setting; indications, contraindications, preparation, conduct and post-operative care

- a. Splenectomy
- b. Partial splenectomy



In addition to the above, candidates should possess comprehensive and in-depth knowledge of diseases and surgical conditions particularly relevant to the region, including hepatobiliary and pancreatic disorders prevalent in Kashmir and adjoining areas. The syllabus should emphasize expertise in the diagnosis, multidisciplinary management, and advanced surgical treatment of conditions such as alveolar hydatid disease, complex biliary pathologies, portal hypertension, and hepatopancreatobiliary malignancies. Candidates are also expected to be well versed with contemporary concepts in liver transplantation, including transplantation in selected non-cirrhotic indications such as hilar cholangiocarcinoma and hepatocellular carcinoma, as well as organ-preserving and function-preserving pancreatic resections, including pancreas-preserving procedures in pancreatic malignancies where appropriately indicated. Familiarity with evolving oncological strategies, minimally invasive approaches, transplant oncology, and region-specific disease burden should form an integral component of the expected competency.

The candidate should be up to date with all landmark trials pertaining to Surgical Gastroenterology and liver transplantation like CROSS Trial-Neoadjuvant chemoradiotherapy for esophageal cancer, MAGIC Trial-Perioperative chemotherapy in gastroesophageal cancer, FLOT4 Trial-FLOT vs ECF/ECX regimen, Dutch D1D2 Trial – Extent of lymphadenectomy, KLASS Trials – Laparoscopic gastric surgery, PRODIGE 7 - HIPEC in colorectal peritoneal metastasis, COLOR II Trial - Laparoscopic rectal surgery, RAPIDO Trial - Total neoadjuvant therapy, PRODIGE 23 Trial, ROLARR Trial – Robotic rectal surgery, SHARP Trial - Sorafenib in HCC, IMbrave 150 Trial - Atezolizumab + Bevacizumab, HIMALAYA Trial - Durvalumab + Tremelimumab, BILCAP Trial - Capecitabine in biliary tract cancer, POISE Trial, PANTER Trial – Step- up approach in necrotizing pancreatitis, PREOPANC Trial – Neoadjuvant therapy in pancreatic cancer, ESPAC – 1 Trial, LEOPARD Trial, SECA I and SECA II – Liver transplant for colorectal liver metastasis.

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