

Paper II: Technical Subject

1. Applied Basic Sciences

- 1.1 Anatomy
- 1.2 Physiology
- 1.3 Biochemistry
- 1.4 Pharmacology
- 1.5 Microbiology
- 1.6 Pathology

2. General Medicine and Psycho-Geriatrics

2.1 Introduction to Clinical Medicine:

- 2.1.1. Headache
- 2.1.2. Chest pain
- 2.1.3. Chills and fever
- 2.1.4. Lassitude and asthenia
- 2.1.5. Cough
- 2.1.6. Nausea and vomiting, dysphagia
- 2.1.7. Ascites
- 2.1.8. Weakness, tremor, chorea, athetosis
- 2.1.9. Dizziness, disorders of sensation, convulsions

2.2 Immunological Factors in Disease:

- 2.2.1. Components of immune system
- 2.2.2. Mechanism of the immune response
- 2.2.3. Immune deficiency and lympho-proliferative disorders
- 2.2.4. Types of immune reaction and their relation to disease
- 2.2.5. Suppression of immune reactions and its effects

2.3 Infection and Diseases:

- 2.3.1. Nature of microorganisms
- 2.3.2. Epidemiology and spread of infections
- 2.3.3. Defense of human host
- 2.3.4. Diagnosis of infections
- 2.3.5. Pyrexia of unknown origin
- 2.3.6. Streptococcal infections, staphylococcal infections, typhoid, tetanus, brucellosis, sexually transmitted infections, hospital acquired infections, gram negative bacterial infections, anaerobic infections

2.4 Chemotherapy of Infections:

- 2.4.1. Antibiotics and other antibacterial agents
- 2.4.2. Anti-virals
- 2.4.3. Anti-fungals
- 2.4.4. Anti-retroviral therapy

2.5 Disturbances in Electrolyte and Water Metabolism:

- 2.5.1. Hyper- and hypo-natremia
- 2.5.2. Hyper- and hypo-kalemia
- 2.5.3. Calcium and magnesium metabolism
- 2.5.4. Disturbances in H⁺ ion concentration

2.6 Diseases of the Cardiovascular System:

- 2.6.1. Cardiac arrhythmias
- 2.6.2. Cardiac failure
- 2.6.3. Valvular heart disease
- 2.6.4. Ischemic heart disease
- 2.6.5. Pericardial diseases
- 2.6.6. Cardiomyopathies, myocarditis

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परीक्षाको पाठ्यक्रम

- 2.6.7. Atherosclerosis, hypertension
- 2.6.8. Diseases of the aorta
- 2.6.9. Peripheral vascular disease
- 2.7 Diseases of the Respiratory System:
 - 2.7.1. Disease of the upper respiratory tract
 - 2.7.2. Bronchial asthma, chronic obstructive pulmonary disorder (COPD), cor pulmonale
 - 2.7.3. Acute and chronic respiratory failure
 - 2.7.4. Neoplasm of lung
 - 2.7.5. Diseases of pleura, mediastinum and diaphragm
- 2.8 Diseases of the Gastrointestinal System:
 - 2.8.1. Diseases of the oesophagus, gastro-oesophageal reflux disorder (GERD)
 - 2.8.2. Peptic ulcer, gastritis and other diseases of the stomach
 - 2.8.3. Inflammatory diseases of small and large intestine
 - 2.8.4. Diverticulosis
 - 2.8.5. Malignancy of stomach, colon
 - 2.8.6. Mal-absorption syndrome
 - 2.8.7. Diseases of the peritoneum
- 2.9 Diseases of the Liver and Biliary Tract:
 - 2.9.1. Diagnostic procedures in liver disorders
 - 2.9.2. Derangement of hepatic /biliary metabolism
 - 2.9.3. Acute Hepatitis
 - 2.9.4. Chronic active hepatitis
 - 2.9.5. Cirrhosis of liver
 - 2.9.6. Tumors of liver
 - 2.9.7. Suppurative diseases of liver
 - 2.9.8. Infiltrative and metabolic diseases of liver
 - 2.9.9. Disorders of gall bladder and bile duct
 - 2.9.10. Ascites
- 2.10 Diseases of the Pancreas:
 - 2.10.1. Diagnosis of pancreatic diseases
 - 2.10.2. Acute and chronic pancreatitis
 - 2.10.3. Tumors of pancreas
- 2.11 Diseases of the Kidney and Urinary System:
 - 2.11.1. Acute renal failure
 - 2.11.2. Chronic kidney disease
 - 2.11.3. Glomerulonephritis
 - 2.11.4. Nephrotic syndrome
 - 2.11.5. Vascular diseases of the kidney
 - 2.11.6. Infections of the urinary tract
 - 2.11.7. Obstructive uropathy
 - 2.11.8. Urinary incontinence
 - 2.11.9. Nephrolithiasis
- 2.12 Diseases of the Endocrine System:
 - 2.12.1. Thalamus and pituitary gland
 - 2.12.2. Diseases of the anterior pituitary
 - 2.12.3. Disorders of the neurohypophysis
 - 2.12.4. Hyper - and hypo - thyroidism
 - 2.12.5. Hyper - and hypo - parathyroidism
 - 2.12.6. Diabetes mellitus
 - 2.12.7. Hyperinsulinism / glucagon and its effects
 - 2.12.8. Diseases of the adrenal cortex and medulla
 - 2.12.9. Diseases of the testes and ovaries
- 2.13 Diseases of Blood and Blood Forming Organs:

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- 2.13.1. Blood formation and destruction
- 2.13.2. Anemia
- 2.13.3. Bone marrow failure
- 2.13.4. Blood groups and blood transfusion
- 2.13.5. Myeloproliferative disorders
- 2.13.6. Abnormal hemoglobins
- 2.13.7. Disorders of platelets
- 2.13.8. Hemorrhagic disorders
- 2.13.9. Leukemia
- 2.13.10. Lymphomas
- 2.13.11. Diseases of spleen and reticulo-endothelial system
- 2.14 Diseases of Connective Tissue, Joints and Bones:
 - 2.14.1. Rheumatoid arthritis, including late onset rheumatoid arthritis (LORA)
 - 2.14.2. Ankylosing spondylitis
 - 2.14.3. Systemic lupus erythematosus
 - 2.14.4. Scleroderma
 - 2.14.5. Polymyalgia rheumatica
 - 2.14.6. Gout
 - 2.14.7. Pseudogout
 - 2.14.8. Osteoarthritis
 - 2.14.9. Diseases of bone - metabolic and endocrine
 - 2.14.10. Tumour of bone
- 2.15 Diseases of the Nervous System:
 - 2.15.1. Diagnostic methods in neurology
 - 2.15.2. Coma
 - 2.15.3. Headache
 - 2.15.4. Epilepsy
 - 2.15.5. Sleep disorders
 - 2.15.6. Diseases of cranial nerves
 - 2.15.7. Cerebrovascular diseases
 - 2.15.8. Diseases of the spinal cord
 - 2.15.9. Diseases of the peripheral nervous system
 - 2.15.10. Pyogenic infections of the CNS
 - 2.15.11. Viral infections
 - 2.15.12. Multiple sclerosis and other demyelinating diseases
 - 2.15.13. Metabolic and nutritional diseases of brain
 - 2.15.14. Degenerative diseases
- 2.16 Diseases of the Skin:
 - 2.16.1. Skin lesions of general medical significance
 - 2.16.2. Generalized pruritus
 - 2.16.3. Pigmentation of the skin
 - 2.16.4. Disorders of melanin metabolism
 - 2.16.5. Photosensitivity and other reactions to light
 - 2.16.6. Hirsutism and alopecia
 - 2.16.7. Cutaneous manifestations of internal malignancy
 - 2.16.8. Psoriasis
 - 2.16.9. Scabies
 - 2.16.10. Fungal infections of skin
- 2.17 Psycho-Geriatrics
 - 2.17.1. Epidemiology of mental disorders in the elderly
 - 2.17.2. Definition and classification of psychiatric Disorders
 - 2.17.3. Delirium /acute confusional State
 - 2.17.4. Dementia

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- 2.17.5. Depression in old age
- 2.17.6. Bipolar disorder
- 2.17.7. Functional psychiatric disorders in old age
- 2.17.8. Personality and behavioural disorders
- 2.17.9. Psychogeriatric service - Principles of treatment
- 2.17.10. Management of Psychiatric Illness
- 2.17.11. Alcoholism and the elderly patient
- 2.17.12. Care-giver problems

3. Geriatric Medicine

3.1 General:

- 3.1.1. Demography, world trends
- 3.1.2. Trends in India and developing countries
- 3.1.3. The aged and society – past and present
- 3.1.4. The evolution of Geriatric Medicine

3.2 Gerontology:

- 3.2.1. Normal and abnormal aging
- 3.2.2. Theories of aging
- 3.2.3. Metabolic and Structural aspects of aging
- 3.2.4. Biochemical changes in the normal aging brain
- 3.2.5. Aging in tissues and cells
- 3.2.6. Atherosclerosis and aging
- 3.2.7. Ecology of human senses
- 3.2.8. The milieu interior and aging

3.3 Geriatric Medicine:

- 3.3.1. How are older patients different?
- 3.3.2. Common patterns of disease in old age
- 3.3.3. Alteration in pain and temperature responses
- 3.3.4. Missing Symptoms
- 3.3.5. Complications of Illness
- 3.3.6. Non-specific presentations
- 3.3.7. Masking by known disease
- 3.3.8. History taking in the elderly
- 3.3.9. Physical Examination of the old patient

3.4 Investigations in the elderly:

- 3.4.1. Policy and interpretation
- 3.4.2. Radiological, hematological & biochemical investigations
- 3.4.3. ECG
- 3.4.4. Urinalysis
- 3.4.5. Radio isotope tests
- 3.4.6. Bone Scan
- 3.4.7. Imaging – ultrasound, CT Scan, MRI
- 3.4.8. How much to investigate?
- 3.4.9. Concept of normal range

3.5 Immunology:

- 3.5.1. Genetic aspects of immunity and immunological diseases
- 3.5.2. Mutation
- 3.5.3. Alternative theories of aging
- 3.5.4. Cancer
- 3.5.5. Immunological surveillance

3.6 Nutrition:

- 3.6.1. Nutritional requirement
- 3.6.2. Changes in total body mass and body composition

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परीक्षाको पाठ्यक्रम

- 3.6.3. Nutritional Assessment
- 3.6.4. Nutritional deficiency in old age
- 3.6.5. Osteoporosis
- 3.6.6. Osteomalacia and Vitamin D
- 3.6.7. Iron and Vitamins
- 3.6.8. Recommended intake of nutrients
- 3.6.9. Prevention of nutritional deficiency
- 3.7 Cardiovascular System:
 - 3.7.1. Physiology and pathology of cardiovascular system in old age
 - 3.7.2. Investigation of heart diseases in old age
 - 3.7.3. Cardiac arrhythmias
 - 3.7.4. Coronary artery disease and acute myocardial infarction
 - 3.7.5. Hypertension and hypertensive heart disease
 - 3.7.6. Postural hypotension
 - 3.7.7. Valvular heart disease
 - 3.7.8. Chronic congestive heart failure
 - 3.7.9. Aortic aneurysm
 - 3.7.10. Bacterial endocarditis
 - 3.7.11. Peripheral vascular disease
 - 3.7.12. Deep venous thrombosis and pulmonary embolism
- 3.8 Endocrine and Metabolic Disorders:
 - 3.8.1. Changes with aging
 - 3.8.2. Diabetes mellitus
 - 3.8.3. Diseases of the pituitary, parathyroid and thyroid
 - 3.8.4. Obesity
 - 3.8.5. Sexual dysfunction
 - 3.8.6. Disorders of sodium, potassium, calcium, magnesium and zinc
 - 3.8.7. Disturbances of fluid metabolism
 - 3.8.8. Hyperpyrexia / heat Stroke
- 3.9 Central Nervous System:
 - 3.9.1. The Aging Brain
 - 3.9.2. Vascular lesions of the central nervous system
 - 3.9.3. Dementia
 - 3.9.4. Degenerative disorders including Parkinsonism
 - 3.9.5. Head trauma
 - 3.9.6. Infections of the nervous system
 - 3.9.7. Epilepsy
 - 3.9.8. Peripheral neuropathy
 - 3.9.9. Disorders of spinal cord and nerve roots
 - 3.9.10. Neoplasia
- 3.10 Genitourinary System:
 - 3.10.1. Structural changes with aging
 - 3.10.2. Acute and chronic renal failure
 - 3.10.3. Infections of the genito-urinary tract
 - 3.10.4. Diseases of the bladder and prostate
 - 3.10.5. Urinary incontinence
 - 3.10.6. Aging changes in the genital tract
 - 3.10.7. Post-menopausal bleeding
 - 3.10.8. Gynaecological disorders in the elderly
- 3.11 Disorders of the Special Senses:
 - 3.11.1. Disorders of the eye
 - 3.11.2. Hearing disturbances
 - 3.11.3. Disturbance of taste and smell

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परीक्षाको पाठ्यक्रम

- 3.11.4. Dental problems
- 3.12 Infections in the Elderly:
 - 3.12.1. Host defenses – natural barriers
 - 3.12.2. White cell response, immune mechanism
 - 3.12.3. Diagnosis of fevers
 - 3.12.4. Urinary tract infection - diagnosis and treatment
 - 3.12.5. Pneumonias - cause, diagnosis and treatment
 - 3.12.6. Septicemia
 - 3.12.7. Bacterial endocarditis
 - 3.12.8. Antibiotic treatment
 - 3.12.9. Rational use of antibiotics
- 3.13 Gastro-intestinal system:
 - 3.13.1. Changes with age
 - 3.13.2. Investigations of the Gastro-intestinal tract
 - 3.13.3. Disorders of the mouth
 - 3.13.4. GERD / hiatus hernia
 - 3.13.5. Acid peptic disease
 - 3.13.6. Disease of the pancreas
 - 3.13.7. Diseases of the small Intestine
 - 3.13.8. Diseases of the large Intestine
 - 3.13.9. Fecal incontinence
 - 3.13.10. GI malignancy
 - 3.13.11. Disease of the liver and biliary system
 - 3.13.12. Constipation – prevention and management
- 3.14 Respiratory System:
 - 3.14.1. Changes with age
 - 3.14.2. Infections of the respiratory system
 - 3.14.3. Chronic Obstructive Airway Disease, Bronchial Asthma
 - 3.14.4. Cor pulmonale
 - 3.14.5. Bronchogenic carcinoma
 - 3.14.6. Respiratory abnormalities in extra-pulmonary conditions
 - 3.14.7. Respiratory failure
- 3.15 Musculoskeletal System:
 - 3.15.1. The aging joints
 - 3.15.2. Degenerative joint disease
 - 3.15.3. Gout, pseudogout
 - 3.15.4. Rheumatoid arthritis
 - 3.15.5. Infective arthritis
 - 3.15.6. Myopathy, myositis, polymyalgia rheumatica
 - 3.15.7. Temporal arteritis
 - 3.15.8. Osteoporosis
 - 3.15.9. Osteomalacia
- 3.16 Hematopoietic System:
 - 3.16.1. Changes with aging
 - 3.16.2. Anaemia in the elderly
 - 3.16.3. The leukaemias and lymphomas
 - 3.16.4. Paraproteinaemia
 - 3.16.5. Myelodysplastic syndromes
 - 3.16.6. Disorders of hemostasis
- 3.17 Dermatology:
 - 3.17.1. The aging skin
 - 3.17.2. Pruritus
 - 3.17.3. Cancers/benign lesions

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- 3.17.4. Pemphigus and pemphigoid
- 3.17.5. Senile purpura
- 3.17.6. Herpes zoster
- 3.17.7. Intertrigo
- 3.17.8. Leg ulcer
- 3.18 Malignancy in old age:
 - 3.18.1. Incidence, clinical significance
 - 3.18.2. Presentation
 - 3.18.3. Investigation and management
 - 3.18.4. Counseling
- 3.19 Pharmacological Aspects of Aging:
 - 3.19.1. Pharmacokinetics in the elderly
 - 3.19.2. Pharmacodynamics
 - 3.19.3. Drug selection and dosage
 - 3.19.4. Drug interactions
 - 3.19.5. Adverse drug reactions
 - 3.19.6. Drug compliance
 - 3.19.7. Drug misuse
- 3.20 Surgery in the Elderly:
 - 3.20.1. Pre-operative assessment
 - 3.20.2. Priorities for surgery
 - 3.20.3. Surgical Emergencies
 - 3.20.4. Fractures
 - 3.20.5. Pathological fractures
 - 3.20.6. Benign lesions
 - 3.20.7. Gangrene - amputation
 - 3.20.8. Elective Surgery
 - 3.20.9. Post-operative problems and management
 - 3.20.10. Anaesthesia in old age
- 3.21 Special Problems:
 - 3.21.1. Pressure sore
 - 3.21.2. Care of the chronically ill
 - 3.21.3. Care of patients with terminal illness
 - 3.21.4. Religion and illness
 - 3.21.5. Falls
 - 3.21.6. Nursing home placement
- 4. Social and Preventive Geriatrics including rehabilitation, and advances in Geriatrics**
 - 4.1 Social Geriatrics:
 - 4.1.1. Types of Family - Joint family system- promotion of Joint Family System – Role of Elders and the younger generation
 - 4.1.2. Isolation, loneliness and dependency - Dependency ratio - Generational equality
 - 4.1.3. Social changes due to urbanization and industrialization with respect to Elders
 - 4.1.4. Financial aspects - sources of income, old age pension
 - 4.1.5. Role of Government and NGOs in up-liftment of socio-economic status of older people
 - 4.1.6. International and national policies on ageing and old age care
 - 4.1.7. Geriatric Service for the Elderly in Western Countries and in India - Structure of geriatric Service - Family as basic Unit - Models of Geriatric Service
 - 4.1.8. Day Hospital, Day Care Centre, Long Stay Care Institution, Home for the Aged
Functions of the Day Hospital - Staff and patients of day Hospital

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परीक्षाको पाठ्यक्रम

- 4.1.9. Nursing Home in Western Countries - Goals of Geriatric Care - Need for similar services in India
- 4.1.10. Psycho-geriatric services - structure and facility - domiciliary assessment and community care
- 4.1.11. Terminal Care Services - social and spiritual problems in terminally ill
- 4.1.12. Ethical Issues in Geriatric Medicine - self determination and decision making in treatment options - informed consent - quality of life - age limits on health care
- 4.1.13. Euthanasia - acts of omission and commission
- 4.2 Preventive Geriatrics:
 - 4.2.1. Preventing Diseases and promoting health in old age - Types of preventive activities - Risk factor management in elderly - screening
 - 4.2.2. Health belief model - General Health practices in elderly
 - 4.2.3. Exercise in the elderly - Physical and Mental domain - Benefits of Exercise
 - 4.2.4. Development of Anticipatory Care and its Rationale - methods of Anticipatory Care
 - 4.2.5. Health promotion and Health Education in the Elderly
 - 4.2.6. Anti-Aging interventions
- 4.3 Rehabilitation:
 - 4.3.1. The concepts and history of rehabilitation
 - 4.3.2. The goals of rehabilitation
 - 4.3.3. Principles of rehabilitation - assessment, goals, priorities and monitoring progress
 - 4.3.4. Rehabilitation in old age - special features in relating to aging, multiple pathology, policies, expectation, carers, acute illness, social and financial support
 - 4.3.5. Clinical evaluation of rehabilitation - impairment, disability and handicap
 - 4.3.6. Prevalence of disability, types of disability
 - 4.3.7. Rehabilitation as Team work - Team leadership, therapist, physiotherapy, occupational therapy, social worker, physician and nursing personnel.
 - 4.3.8. Self care evaluation and management of Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL) - self care assessment tools
 - 4.3.9. Aids and application - tools for living
 - 4.3.10. Role of physiotherapy in the elderly
 - 4.3.11. Contractures and other deleterious effects of immobility
 - 4.3.12. Pressure Ulcer - factors, prevention and management
 - 4.3.13. Rehabilitation of stroke in the elderly
 - 4.3.14. Rehabilitation of specific diseases - parkinsonism, paraplegia, fracture neck of femur, acute and chronic arthritis, lower limb amputation, low back pain
 - 4.3.15. Organization and effectiveness of rehabilitation services - community Services
 - 4.3.16. Geriatric Unit, day hospital, day care centre, long stay institution - role of rehabilitation in the above services
- 4.4 Advances in Geriatric Medicine:
 - 4.4.1. Alzheimer's Disease
 - 4.4.2. Parkinsonism
 - 4.4.3. Osteoporosis
 - 4.4.4. Urinary incontinence
 - 4.4.5. Falls / prevention of fractures
 - 4.4.6. Parenteral nutrition
 - 4.4.7. Stroke Clinic and Memory Clinic
 - 4.4.8. Anti-aging research