



தமிழ்நாடு டாக்டர் எம்.ஜி.ஆர். மருத்துவப் பல்கலைக்கழகம்
The Tamilnadu Dr. M.G.R. Medical University
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Allied Health Science
B.Sc. Physician Assistant

Regulation, Curriculum and Syllabus
(2011-2012)

SYLLABUS FOR THE THREE YEAR DEGREE COURSE

ALLIED HEALTH SCIENCES - PHYSICIAN ASSISTANT

<u>FIRST YEAR</u>		
S.No.	SUBJECT	UNITS
1.	ANATOMY	4
2.	PHYSIOLOGY	4
3.	BIOCHEMISTRY	4
4.	INTRODUCTION TO COMPUTERS	4
5.	TECHNICAL WRITING/SPOKEN ENGLISH PATIENT ORIENTED COMMUNICATION SKILLS	4
	INSERVICE TRAINING I (LAB ROTATION)	
<u>SECOND YEAR</u>		
6.	MEDICINE & PHARMACOLOGY	4
7.	SURGERY/ EQUIPMENTS / ANAESTHESIOLOGY	4
8.	PAEDIATRICS & GERIATRICS	4
9.	CLINICAL MICROBIOLOGY	2
10.	OBSTETRICS & GYNAECOLOGY	4
	INSERVICE TRAINING II (CLINICAL DEPARTMENT ROTATION)	
<u>THIRD YEAR</u>		
11.	CARDIOLOGY & CARDIAC SURGERY	4
12.	NEUROLOGY	4
13.	NEPHROLOGY / PULMONOLOGY	4
14.	GASTROENTEROLOGY/ORTHOPAEDICS	4
	INSERVICE TRAINING III (SURGICAL DEPARTMENT ROTATION)	

PRACTICAL EXAMINATION DETAILS

FIRST YEAR : LABORATORY ROTATION:-

TRAINING IN LABORATORY TECHNIQUES :-

1. Phlebotomy , collection of blood sample and storage
2. Urine collection / analysis / normal and abnormal values significance
3. Biochemical parameters and their normal and abnormal values / significance
4. Cardiac enzymes – significance / troponin
5. Viral markers and their significance
6. Culture methods / techniques / swab etc.
7. CSF / Pleural fluid / Ascitic fluid analysis and their significance
8. Mantoux test and its significance
9. Viral markers /HIV testing – interpretation
10. Pregnancy test
11. Sterile techniques / sterilization of lab
12. Instruments and their importance
13. Microscope
14. Blood counts and ESR
15. Slide preparation/ staining
16. Malarial parasite identification and its test
17. Motion analysis
18. Disposing lab waste materials
19. Entering the data into the computer system
20. Giving a scenario – ask to interpret to the doctor and to the patient

Basic science :-

1. Bones and their identification
2. Slides – Columnar, ciliated columnar , squamous , cuboidal epithelia
3. Pictures identification

II YEAR :-

CLINICAL DEPARTMENT ROTATION :-

1. Case sheet writing
2. Assessment of communication to the patient
3. BLS (demonstration of basic life support)
4. Ryle's tube, Foley's , colostomy , drains care
5. Anaesthesiology –assisting the anaesthetist and different techniques of anaesthesia
6. Giving a common drug strip and asking questions
7. Giving an ECG strip and asking basic questions
8. ECG taking and interpretation – common cases only
9. LP/ Pleural tapping /ascetic fluid tapping and other common procedures – providing a scenario and asking questions
10. Normal chest X-ray presentation / common abnormal pattern
11. Normal delivery
12. Neonatal care and resuscitation
13. Obs and Gyn instruments/ sterile techniques / instruments (forceps etc)
14. Importance of PAP Smear /terminal care
15. Preparing the discharge summaries
16. Entry of biochemical values in to the patient's file
17. Assess the communication skills by giving a scenario

III YEAR:-

1. Case sheet writing
2. Vitals – normal and abnormal values and their significance
3. ECG interpretation /USG significance

4. Life style modifications and their importance – giving some examples and asking questions
5. Surgical instruments and their sterilization procedures
6. Dressing materials and different techniques
7. Wound care / trauma patient care
8. Dealing with an unconscious patient
9. Assisting surgeons
10. Shifting of trauma patient
11. Care of the terminally ill patient
12. Bed sore and its care
13. Burns patient and their care
14. ICU – protocols
15. blood transfusions
16. Discharge summary preparation
17. Angio report typing
18. Entering the biochemical values and their interpretation
19. Giving a scenario in surgery and assessing the communication skills

SUBJECT 1 : ANATOMY

Unit 1

Introduction to Human Anatomy -Definitions, planes of the body, organ system, optometry
Tissues of the body - epithelium, connective tissue, bone and cartilage.
Types of cells and their arrangements

Unit 2

Skeleton system - skull bones, other bones and body joints
Muscles - Different types – origin, insertion, functions and nerve supply
Cardiovascular system - heart & blood vessels

Unit 3

Digestive system – mouth, esophagus, stomach, small and large intestine, rectum, anus, liver, spleen, pancreas
Respiratory system – nose, bronchi, lungs, diaphragm
Endocrine system: - Major endocrine glands
Urinary system – kidneys, urinary bladder, urethra (male and female)
Reproductive system – Male and female

Unit 4

Nervous system – path, cell types, blood-brain barrier, reflex arc, cranial, spinal and peripheral nerves, autonomic nervous system
Brain: - Parts, protective coverings, cerebrospinal fluid, brain stem, diencephalons, Cerebellum.
Skin and appendages / sense organs– anatomy

SUBJECT 2 – PHYSIOLOGY

Unit 1

Introduction to physiology – Cell structure, body fluid compartments, Homeostasis, transport across cell membrane, neuromuscular junction and muscle contraction
Blood – composition and function of blood, erythropoiesis , anaemia ,polycythemia, blood coagulation , plasma proteins, blood groups including Rh
Cardiovascular system – Conduction of heart beat, cardiac cycle, ECG , cardiac output, arterial blood pressure measurement , heart rate.

Unit 2

Respiration – Mechanism, lung volume and capacities, transport of oxygen and carbondioxide , regulation of respiration, artificial respiration Digestive system – secretions and functions of salivary glands, gastric glands, pancreas, small intestine, absorption, liver function Excretory system – formation of urine, micturition, normal and abnormal constituents of urine

Unit 3

Endocrine system – Major endocrine glands, hypothalamic- pituitary – target gland axis , regulation.
Reproductive system – male and female sex hormones, spermatogenesis, menstrual cycle,
Integumentary system – functions of skin

Unit 4

Nervous system – nerve impulse conduction, synapse, receptors, reflex action, ascending and descending tracts, functions of cerebral cortex, basal ganglia, thalamus, hypothalamus, brain stem., sleep and reticular formation .
Special senses - olfaction, gestation, hearing and vision – pathways and applied aspect

SUBJECT 3 - BIOCHEMISTRY

Unit 1

Carbohydrates – Glucose, fructose, galactose, lactose, sucrose, starch and glycogen- properties, structure and function
Proteins – aminoacids, peptides – properties and tests with a few examples

Unit 2

Lipids – fatty acids, saturated and unsaturated, cholesterol, phospholipids and plasma membrane, glycerol
Enzymes – definition, classification, factors affecting enzyme activity, coenzyme, enzyme inhibition , units of enzyme, isoenzyme and enzyme pattern in diseases

Unit 3

Vitamins – Fat and water soluble vitamins – requirements and properties
Minerals – Na, K, Ca, P, Fe, Cu and Se – requirement, availability and property
Hormones – receptor concept – insulin, glucagon and thyroxin
Metabolism in short – carbohydrate, protein and lipids

Unit 4

Role of biochemistry in diagnosis of diseases, inborn errors of metabolism , disorders of kidney and liver (diagnostic tests) , coagulation disorders , disorders of calcium and phosphorus metabolism, endocrine disorders.
Biochemical tests, their interpretation, radioactive isotopes in diagnosis, urine analysis

SUBJECT 4 ; INTRODUCTION TO COMPUTER

Unit 1

Introduction to computer – I/O devices – memories – RAM and ROM – different kinds of ROM –kilobytes, MB, GB their conversions – large computer – Medium, Micro , Mini computers – different computer languages – number system – binary and decimal conversions – different operating system – MS Dos – basic commands –MD, CD, DIR, TYPE and COPY CON commands – Networking – LAN, WAN, MAN (only basics)

Unit 2

Typing text in MS word- manipulating text- formatting the text – using different font sizes, bold, italics- Bullets and numbering – pictures, file insertion – aligning the text and justify – choosing paper size – adjusting margins- header and footer, inserting page numbers in a document – printing a file with options – using spell check and grammar – find and replace – mail merge – inserting tables in a document.

Unit 3

Creating table in MS – Excel – cell editing – using formulas and functions – manipulating data with excel – using sort function to sort numbers and alphabets –rawing graphs and charts using data in excel – auto formatting – inserting data from other worksheets

Preparing new slides using MS- POWER POINT – inserting slides – slide transition and animation – using templates – different text and font sizes – slides with sounds – inserting clip arts, pictures, tables and graphs – presentation using wizards.

Unit 4

Introduction to Internet – using search engine – Google search – Exploring the text Explorer and Navigator – uploading and downloading of files and images
E mail ID creation – sending messages – attaching files in E- mail

**SUBJECT 5 : TECHNICAL REPORT WRITING/
SPOKEN ENGLISH/COMPREHENSION
PATIENT ORIENTED COMMUNICATION SKILLS**

Unit 1

Definition, basic principle, properties and role of technical writing
Information structure and techniques, distinction between technical and literary writing
Describing mechanism, process description, classification, cause and effect, comparison and contrast and analogy

Unit 2

Styles in technical writing, types of technical report: - report layout, formal report format, memorandum report, letter report.
Bulletins, abstract, proposal, research report, feasibility study
Business letter: - definition, purpose, elements, characteristics, format, styles & types
Resume and cover letters

Unit 3

Guidelines in technical writing , writing process from audience to rough draft, audience analysis , task analysis , power – revision techniques, libraries.
Documentation, cross-referencing, basic patterns and elements of the sentence, common grammar, usage, punctuation problems, common spelling problems
Spoken English / comprehension and patient oriented communication skills

Unit 4

Graphic aids:- Bar chart, line chart, table, circle or Pie chart, surface or strata chart, map charts, flow charts, flow sheets, diagrams , figures, photographs , drawings, important points in handling graphics
Contemporary communication: E- mail, Internet, Desktop publishing, hypertext

SECOND YEAR

SUBJECT 6 : MEDICINE/PHARMACOLOGY

Unit 1

Introduction to medical terminology- roots, prefixes, and suffixes, vocabulary
Problems – genetics, aging, infection, injury
Skeletal system – Bones and ligaments – disorders, diagnosis and treatment
Muscular system – skeletal, smooth and cardiac muscles – disorders, diagnosis and treatment

Unit 2

Nervous system – brain, spinal cord, peripheral nerves, sense organs – disorders , diagnosis and treatment
Endocrine system – disorders, diagnosis and treatment
Diagnostic includes – blood work, X-ray and imaging
Treatment includes – medical and surgical

Unit 3

Cardiovascular system –heart, blood and blood vessels – disorders, diagnosis and treatment
Respiratory system – air passages, lungs, diaphragm - disorders, diagnosis and treatment
Integumentary system – skin, hair and nails – disorders, diagnosis and treatment
Immune and lymphatic system – disorders, diagnosis and treatment
Diagnosis – blood and imaging
Treatment – Medical and surgical

Unit 4

Digestive system – mouth, throat, stomach, intestine, liver, gallbladder, pancreas – disorders, diagnosis and treatment
Urinary system – kidneys, ureters, bladder, urethra- disorders, diagnosis and treatment
Reproductive system – male and female – disorders, diagnosis and treatment
Emergency medicine / Medical ethics

Pharmacology:- Basic drug effect, classification of drugs acting on nerves, heart , blood pressure, respiratory system, gastrointestinal system, kidneys, hormones, musculoskeletal system and analgesics etc., Common drugs- effects and side effects and drug interactions.
Narcotics and scheduled drugs.

SUBJECT 7 :SURGERY/EQUIPMENTS/ANAESTHESIOLOGY

Unit 1

History of surgery, role of surgeon, importance of team work, stresses arising during operative procedure , surgical terminology, types of incision and their indications, internal & external haemorrhage – signs and symptoms, management ,

Tourniquets – use and duration of application and dangers of use.

Sutures and surgical instruments

Unit 2

Pathogenesis, causes, epidemiology, clinical presentation, investigations and management of diseases of the following systems:-

Skin – ulcers, wounds, burns, skin infections (boil, carbuncle, abscess,

Cysts (epidermoid, dermoid) tumors (basal cell, squamous cell carcinoma and melanoma)

Head and neck region – congenital anomalies (cleft lip, cleft palate, branchial cyst and fistula, thyroglossal cyst), parotid and submandibular glands, oral ulcers, Leukoplakia,

jaw tumors, squamous carcinoma of oral cavity, pharynx and larynx.

Thyroid and lymph nodes swelling.

Arteries – limb ischemia, non-invasive vascular diagnostic tests, atheromatous disease, aneurysm, Raynaud's syndrome, emboli,

Veins – Varicose veins, deep vein thrombosis and pulmonary embolism

Unit 3

Breast – mastalgia, fibroadenoma, cyst, breast abscess, cancer

Oesophagus – dysphagia, reflux, hiatus hernia, benign and malignant tumors

Stomach and duodenum – peptic ulcer, carcinoma , pyloric stenosis

Small intestine – small bowel obstruction, intestinal tuberculosis

Colon and rectum – amoebic colitis, ulcerative colitis, colorectal cancer

Appendix – acute appendicitis , acute abdomen

Anus – Haemorrhoids, pruritis ani, fissure and fistula-in-ano, anorectal abscesses, cancer

Peritoneum and intraperitoneal abscesses, liver – trauma, abscess, cancer

Biliary tract – gall stone disease and carcinoma, pancreas – pancreatitis, carcinoma

Hernias of abdominal wall- Inguinal, femoral, umbilical and epigastric

Urology- diagnostic studies, urinary calculi, urinary infection, prostatic hyperplasia, tumors Epididymo-orchitis, hydrocele, carcinoma of testicle and penis

Neurology – diagnosis, treatment and rehabilitation of disorders of entire nervous system

Various procedures like microdissectomy and laminectomy etc.

Unit 4

Common equipments /anaesthesiology

Personal cleanliness and aseptic techniques / dressing techniques / wound care

Pre-operative and post-operative care of the surgical patient

Emergency procedure – endotracheal intubation, tracheotomy

Central line placement, IV cannulation, Ambu bag ventilation, CPR, Basic Life Support.

SUBJECT 8 : PAEDIATRICS AND GERIATRICS

Unit 1

Definition, population, morbidity and mortality in children ,maternal , perinatal , neonatal , infant and preschool mortality rates, current National Programmes like ICDS, RCH, Vitamin A prophylaxis, UIP,IMCI, Pulse Polio, AFP . ARI. Diarrhoea control programmes.

Growth and development – anthropometry – Measurement and interpretation of weight, length/height, head circumference, mid-arm circumference. Use of weighing machines, infant meter, interpretation of Growth Charts: Road to health card and percentile growth curves, abnormal growth patterns- failure to thrive, short

stature, growth pattern of different organ systems like lymphoid, brain and sex organs, normal pattern of teeth eruption.

Important milestones in infancy and early childhood in areas of gross motor, fine motor, language and personal – social development, psychological and behavioural problems

Measurement and interpretation of sitting height, US: LS ratio and arm span

Age- independent antropometric measurement – principles and application

Unit 2

Nutrition - normal requirements of carbohydrates, protein, fats, minerals and vitamins for newborn, children, pregnant and lactating mother. Common food sources.

Breast feeding – colostrum and composition of breast milk, initiation and technique of feeding, hazards and demerits of prelacteal feed, top milk and bottle – feeding. Feeding of LBW babies. Infant feeding /weaning foods, methods of weaning. Assessment of nutritional status of child based on history and physical examination.

Characteristics of transitional and mature milk (foremilk and Hind milk)

Protein energy malnutrition-definition, classification, features, causes and management.

Vitamins –etio-pathogenesis, clinical feature, biochemical and radiological findings, differential diagnosis and management of nutritional disorders.

Definition, causes and management of obesity

Immunization :- National immunization programme, vaccine preservation and cold-chain.

Vaccination types, contents, efficacy, storage, dose, site, route, contraindications and adverse reactions- BCG, DPT, OPV, Measles, MMR and Typhoid.

Pulse Polio Immunization, AFP (Acute flaccid paralysis) surveillance

Special vaccines – Hepatitis B, H influenza B, Pneumococcal , Hepatitis A, Chicken Pox, Meningococcal and Rabies.

Unit 3

Disorders of respiratory system, gastro intestinal tract, central nervous system, cardiovascular system, genitor-urinary system and haematological disorder

Infectious disease – epidemiology, basic pathology, symptoms, signs, complications, investigations, differential diagnosis , management and prevention of common bacterial , viral and parasitic infections .

Special reference to vaccine – preventable disease – Diarrhoea, LRTI, TB, Polio, meningitis, diphtheria, whooping cough, tetanus , measles, mumps, rubella, typhoid, viral hepatitis , cholera, chicken pox, giardiasis, amoebiasis, intestinal helminthiasis, malaria, dengue fever, AIDs , Kala azar , leprosy , chlamydia infection.

Paediatric emergencies – status epilepticus, status asthmaticus / acute severe asthma, shock and anaphylaxis, burns, hypertensive emergencies, gastrointestinal bleed, comatose child, congestive cardiac failure, acute renal failure.

Genetics- principles of inheritance and diagnosis of genetic disorders – Down’s syndrome

Unit 4:-

Geriatrics- physiological and psychological fundamentals of aging process

Diet for the aged and management of nutritional disorders

Disorders of major geriatric ailments and management -

Medical – infections, dehydration, acute confusional state, osteoporosis,

Degenerative joint diseases, effects of immobility – prevention of contracture and bedsores. Economic and psychosocial needs of the aged. Role of various health care providers including family.

SUBJECT 9 : CLINICAL MICROBIOLOGY

Unit 1

Introduction, types of microorganisms, microbial growth

Sterilization and disinfection in the laboratory, control of microbial growth –

Antimicrobial method and chemotherapy

Microbes versus Humans – disease process, pathogenicity, virulence, immune system

Unit 2

Bacteriology – gram positive, gram negative, acid fast bacilli, spirochetes,

Virology – classification, rubella, adenovirus, oncogenic viruses (HPV, HBV, EBV, Retroviruses), HIV.

Fungi – Yeasts, Intracellular parasites / Helminths.

SUBJECT 10 – OBSTETRICS AND GYNAECOLOGY

Unit 1

Bony pelvis – important landmarks of obstetrics significance, fetal skull

Physiological changes in pregnancy / menopause

Conception, abortions, gestational trophoblastic diseases

Vulva – cyst, inflammation, neoplasia, dystrophy

Vagina – cytology, infection, inflammation, neoplasia

Uterus – endometriosis, adenomyosis, hyperplasia, atrophy, carcinoma

Cervix – erosion, infections, malignancy

Infections – STD, genital TB, HIV, TORCH, vertical transmission of HIV

Unit 2

Obstetrics- Diagnosis of pregnancy, antenatal care and fetal surveillance, first trimester bleeding, normal and abnormal presentations and positions, dystocia due to bony pelvis, soft tissue, high risk pregnancies, IUGR, IUD, preterm labour, premature rupture of membranes, poly and oligohydramnios, postdated delivery,

Prolonged labour, obstructed labour, rupture uterus, previous LSCS, third trimester bleeding, preeclampsia and eclampsia, medical disorders complicating pregnancy, surgical emergencies in obstetrics, Rh isoimmunization, partogram, ultra sound in obstetrics, fetal monitoring, active management of labour, neonatal resuscitation, analgesia and anaesthesia in obstetrics, instrumental deliveries, LSCS, third stage complications, normal and abnormal puerperium, morbidity and mortality, medical auditing in obstetrics.

Unit 3

Gynecology: - Maldevelopment, injuries, infections, cysts, tumors of female genital tract.

Vulva – inflammation, ulcers, atrophy, dystrophies, cysts, neoplasm

Vagina – leucorrhoea, infections, carcinoma

Cervix – erosion, ulcer, dysplasia, carcinoma

Uterus – prolapse, displacements (inversion and retroversion), endometriosis

abnormal uterine bleeding / post menopausal bleeding, endometrial hyperplasia, benign and malignant tumours.

Primary and secondary amenorrhoea, infertility, PCOD, assisted reproductive techniques, choriocarcinoma,

Unit 4

Urinary system – Stress incontinence, pelvic pain, low back ache

Cancer screening for genital malignancy and breast / Pap smear

Radiotherapy outline and chemotherapy

Neonatology: - Neonatal resuscitation, meconium aspiration syndrome, preterm care, RDS, neonatal jaundice, congenital anomalies, birth injuries.

THIRD YEAR

SUBJECT 11 CARDIOLOGY AND CARDIAC SURGERY

Unit 1

Basics – structural basis of cardiovascular disease, embryology, chambers, heart valves, surface marking, great vessels, blood, cardiovascular disease, cardiac cycle, heart sounds, circulation of blood, cardiovascular responses to exercise, heart failure and compensatory mechanism, cardiac muscle action, coronary perfusion.

Unit 2

Cardiovascular diseases – symptoms and signs, pulse, BP, JVP

Congenital heart disease – cyanotic and acyanotic heart diseases

Hypertension- essential, malignant, systemic and pulmonary hypertensions

Arterial diseases – atherosclerosis – risk factors, Burger's disease

Coronary, Rheumatic heart disease, heart failure, cardiac arrhythmias, cardiomyopathies

Peripheral vascular disease, pulmonary thromboembolism,

Systemic diseases affecting the heart, pregnancy and heart disease

Pericardial diseases, Cardiac trauma, tumors of heart

Unit 3

Prevention of heart diseases –Diagnostic tools – ECG, Chest X-ray, ECHO, TMT, Holter, 24 hour ambulatory BP monitoring, blood analysis., etc.

Cardiac catheterization and coronary angiography- preparation of patient physically and mentally. Pre and post-operative care and rehabilitation programme. PPI

Importance of life style modification measures.

Unit 4

Cardiac surgery :- Basics – Cardiopulmonary bypass – closed and open heart operation, PDA ligation, closed mitral valvotomy, pulmonary artery banding , block trussing shunt, pericardiectomy, shunt operations, ASD and VSD closure, Tetralogy of Fallot correction, valvular disease surgeries, surgery for transpositions, other corrective surgeries and coronary surgeries.

SUBJECT 12: NEUROLOGY

Unit 1

Nervous system – basics – neurotransmitters- general principles and common transmitters

Cell membrane – physicochemical properties, permeability and transport, bioelectricity,

Genesis of resting membrane potential, action potential, properties of nerve-fibres.

Neuromuscular junction

Muscle proteins, excitation – contraction coupling, injury and repair of nerves and muscles, work physiology.

Unit 2

Sensory system –Functional organization of sensory system, perception of sensory stimuli, coding, physiology of pain.

Motor System – Functional organization of motor system, properties of reflexes, brain stem ,stretch , tendon reflexes, basal ganglia cerebellum and vestibular neck reflexes , maintenance of equilibrium ,localizing the level of lesion in neurological diseases

Visceral and motivational system – autonomic nervous system, hypothalamus , limbic system, emotions, EEG , sleep and wakefulness, learning , memory and speech.

Unit 3

Neuropathology – Trauma

Inflammatory disorders- pyogenic and tuberculous meningitis,brain abscess, tuberculoma

CSF and its disturbances – cerebral odema, raised intracranial pressure

Cerebrovascular disease – atherosclerosis, thrombosis, embolism, aneurysm, hypoxia, infarction and haemorrhage.

Unit 4

Neurological diseases: - Clinical examination of nervous system, investigations

Major manifestations – headache, facial pain, raised intracranial tension, faintness, dizziness, syncope, vertigo

Disorders of sleep and movement

Sensory disturbances (numbness, tingling and sensory loss), acute confusional state, coma and brain death,

Aphasia and focal cerebral disorders, disturbances of brain stem, vision and sphincter.

Headaches – migraine, cluster and seizures

Cerebrovascular disease-Dementia, meningitis, encephalitis , cranial nerve diseases, spinal cord diseases , tumours (primary and secondary), Peripheral neuropathies and demyelinating disorders , multiple sclerosis , Parkinson’s disease, extrapyramidal disorders, cerebellar disorders.

Motor neuron disease, diseases of muscles, neurological manifestations of systemic diseases, nutritional and metabolic diseases of the nervous system.

SUBJECT 13 : NEPHROLOGY/ PULMONOLOGY

Unit 1

Genito- urinary system – basics, innervations of urinary bladder in detail, microscopic structure of the kidney, Juxtaglomerular apparatus, microcirculation of kidney, histopathology of kidney, ureters, urinary bladder and urethra.

Renal haemodynamics and glomerular filtration- renal function, renal function tests, micturition

Unit 2

Urinary tract pathology- basis of impaired renal function, urine analysis.

Glomerulonephritis – classification – primary (proliferative and non-proliferative)

Secondary glomerulonephritis – (SLE, purpura, polyarteritis, amyloidosis, diabetes, nephritic syndrome)
Acute renal failure, progressive renal failure and end stage renal disease
Pyelonephritis , reflux nephropathy, interstitial nephritis
Renal and genitourinary tract tumours – renal cell carcinoma and nephroblastoma
Renal vascular disorders, kidney changes in hypertension
Urinary bladder – cystitis, carcinoma, urinary tract tuberculosis, urolithiasis and obstructive uropathy
Congenital abnormalities of kidneys and urinary system

Unit 3

Clinical examination of kidney and genitourinary system- symptoms, signs and investigations.
Major manifestations – dysuria, pyuria, urethral symptoms
Disorders of urine volume, haematuria , proteinuria, oedema,
Obstruction of urinary tract, incontinence, renal involvement in systemic disorders
Drugs and kidney, renal replacement therapy

Unit 4

Upper airway diseases- basic respiratory mechanics, causes and pathophysiology of hypoxia and hypercapnia.
Respiratory failure –acute, chronic mechanism and management
Allergy and bronchial asthma, chronic obstructive lung diseases
Restrictive / interstitial lung diseases, pulmonary tuberculosis, occupational lung diseases
Lung cancer – Primary and secondary, haemoptysis , pneumonia.
Pleural diseases –Pneumothorax, Pleural effusion
Cardiogenic and non-cardiogenic pulmonary odema
Diseases of the Diaphragm and the chest wall

SUBJECT 14: GASTROENTEROLOGY / ORTHOPAEDICS

Unit 1

Clinical gastroenterology – Basics, functions and physiology of defecation
Preventive gastroenterology- obesity, GI disorders, constipation, diarrhea and dysentery
Surgical asepsis and hygienic endoscopy room – preparation of sterile field – preparation of tables, equipments, instruments for the procedure, giving oral anaesthetic agent, transfer and positioning of the patient, care of the room before , during and after the endoscopy procedure, special precautions in handling patients with sepsis, blood borne infection – Hepatitis B, HCV, HIV etc, cleaning and disinfection , terminal disinfection,
Basic endoscopy unit – forward viewing, single channel and double channel endoscopy and specific instruments used in endoscopic and colonoscopic procedures.

Unit 2

Ortho: - basics, ossification of bones of the limbs for age determination, X-rays of bones, process of repair of bone. Infections – osteomyelitis, tuberculosis, mycetoma.
Metabolic diseases – rickets /osteomalacia, osteoporosis, hyperparathyroidism
Tumours- Primary – Osteosarcoma, Osteoclastoma, Ewing's sarcoma, chondrosarcoma and Secondary tumors Arthritis – Rheumatoid, osteo arthritis/ ankylosing spondylitis.

Unit 3

Fracture – definition, classification, management, fracture healing, delayed union, open fractures, management of fracture clavicle, shaft of humerus and dislocation of shoulder.
Classification of injuries around the elbow and management of supracondylar fracture and dislocation of elbow, Monteggia fracture dislocation and fracture of both bones of forearm, Volkamann's ischemic contracture, fracture lower end of radius, scaphoid and metacarpal fracture.
Fracture of pelvis and dislocation of hip, fracture neck of femur, trochanter, shaft of femur tibia, fibula and metatarsal.

Unit 4

Internal derangements of knee, injuries of ankle and foot, amputations,
Congenital malformations – CTEV, torticollis , CDH, pseudoarthrosis Disorders of hip- Coxa vara, Perthes disease. Deformities and disorders of the spine
Blood transfusion

APPLIED HEALTH SCIENCES

EXAMINATION QUESTION PAPER PATTERN

B.Sc., DEGREE COURSE – PHYSICIAN ASSISTANT

ESSAY	3 X 10 = 30 MARKS
SHORT NOTES	8 X 5 = 40 MARKS
SHORT ANSWERS	10 X 3 = 30 MARKS
TOTAL	= 100 MARKS

**I YEAR:- BASIC SCIENCES :- ANATOMY , PHYSIOLOGY, BIOCHEMISTRY
COMPUTER, TECHNICAL REPORT WRITING ,ENGLISH AND
COMMUNICATION**

S.No.	SUBJECT	THEORY		PRACTICAL		INTERNAL ASSESSMENT	
		MAX	MIN	MAX	MIN	MAX	MIN
1.	APPLIED BASIC SCIENCES	100	50	50	25	50	25
2.	COMPUTER/ TECHNICAL WRITING/SPOKEN ENGLISH/ PATIENT ORIENTED COMMUNICATION SKILLS	100	50	50	25	50	25

**II YEAR:- MEDICINE , PHARMACOLOGY, SURGERY, PAEDIATRICS AND GERIATRICS,
CLINICAL MICROBIOLOGY, OBSTETRICS AND GYNAECOLOGY**

S.No.	SUBJECTS	THEORY		PRACTICAL		INTERNAL ASSESSMENT	
		MAX	MIN	MAX	MIN	MAX	MIN
1.	MEDICINE & PHARMACOLOGY	100	50	50	25	50	25
2.	PAEDIATRICS & GERIATRICS/ CLINICAL MICROBIOLOGY	100	50	50	25	50	25
3.	SURGERY/ OBSTETRICS & GYNAECOLOGY	100	50	50	25	50	25

**III YEAR :- CARDIOLOGY AND CARDIAC SURGERY, NEUROLOGY,
NEPHROLOGY/PULMONOLOGY, GASTROENTEROLOGY & ORTHOPAEDICS**

S.No.	SUBJECTS	THEORY		PRACTICAL		INTERNAL ASSESSMENT	
		MAX	MIN	MAX	MIN	MAX	MIN
1.	CARDIOLOGY AND CARDIAC SURGERY/ NEUROLOGY	100	50	50	25	50	25
2.	NEPHROLOGY/ PULMONOLOGY/ GASTRO ENTEROLOGY/ ORTHOPEDICS	100	50	50	25	50	25
