

**SCHEME AND SYLLABUS FOR THE POST OF CIVIL ASSISTANT SURGEON (SPECIALISTS) IN  
A.P VAIDYA VIDHANA PARISHAD  
SCHEME OF THE EXAMINATION**

<b>WRITTEN EXAMINATION (Objective Type)</b>				
<b>PAPER</b>	<b>SUBJECT</b>	<b>No. Of Questions</b>	<b>Duration Minutes</b>	<b>Maximum Marks</b>
PAPER-I	GENERAL STUDIES & MENTALABILITY (English medium only)	150	150	150
PAPER – II	SUBJECT: (Medical Science, General Medicine and General surgery) (Common to all) (English medium only)	150	150	150
PAPER-III	concerned subject: (English medium only)	150	150	150
Total				450
<p><b>NEGATIVE MARKS:</b> 1. As per G.O. Ms. No.235, Finance (HR-I, Plg &amp; Policy) Dept., Dt.06/12/2016, for each wrong answer will be penalized with 1/3<sup>rd</sup> of the marks prescribed for the question.</p> <p>2. PG qualification in the concerned speciality form a University recognised by Medical Counsel of India.</p>				

**PAPER-I: GENERAL STUDIES AND MENTAL ABILITY**

1. Events of national and international importance.
2. Current affairs- international, national and regional.
3. General Science and it applications to the day to day life Contemporary developments in Science & Technology and information Technology.
4. Social- economic and political history of modern India with emphasis on Andhra Pradesh.
5. Indian polity and governance: constitutional issues, public policy, reforms and e-governance initiatives with specific reference to Andhra Pradesh.
6. Economic development in India since independence with emphasis on Andhra Pradesh.
7. Physical geography of Indian sub-continent and Andhra Pradesh.
8. Disaster management: vulnerability profile, prevention and mitigation strategies, Application of Remote Sensing and GIS in the assessment of Disaster.
9. Sustainable Development and Environmental Protection
10. Logical reasoning, analytical ability and data interpretation.
11. Data Analysis:
  - a) Tabulation of data
  - b) Visual representation of data
  - c) Basic data analysis (Summary Statistics such as mean, median, mode, variance and coefficient of variation) and Interpretation
12. Bifurcation of Andhra Pradesh and its Administrative, Economic, Social, Cultural, Political, and Legal implications/problems.

## PAPER-II (Common to all)

### Subject: (MEDICAL SCIENCE, GENERAL MEDICINE AND GENERAL SURGERY)

**HUMAN ANATOMY:** Gross and microscopic anatomy and movements of shoulder hip and knee joints – Gross and microscopic anatomy and blood supply of lungs, heart, kidneys, liver, testis and uterus – Gross anatomy of pelvis, perineum and inguinal region, Cross sectional anatomy of the body at mid-thoracic, upper abdominal, mid-abdominal and pelvic regions. Major steps in the development of lung, heart, kidney, urinary bladder, uterus, ovary, testis and their common congenital abnormalities – Placenta and placental barrier – Neural pathways for cutaneous sensations and vision cranial nerves iii, iv, v, vi, vii, x; distribution and clinical significance - Anatomy of the automatic control of gastrointestinal respiratory and reproductive systems.

**HUMAN PHYSIOLOGY:** Nerve and muscle excitation, conduction and transmission of impulse; mechanism of contraction; neuromuscular transmission - Synaptic transmission, reflexes, control of equilibrium posture and muscle tone. Descending pathways; functions of cerebellum, basal ganglia, reticular formation, hypothalamus limbic system and cerebral cortex – Physiology of sleep and consciousness: E.E.G. – Higher functions of the brain – Vision and hearing – Mechanism of action of hormones; formation, secretion, transport, metabolism, functions and regulation of secretion of pancreas and pituitary glands – Menstrual cycle; lactation, pregnancy – Development regulation and fate of blood cells – Cardiac excitation; spread of cardiac impulse, E.C.G. cardiac output, blood pressure, Regulation of Cardiovascular functions – Mechanics of respiration and regulation of respiration – Digestion and absorption of food, regulation of secretion and motility of gastrointestinal tract – Glomerular and tubular functions of kidney – Blood groups, Rh grouping, blood transfusion, and Blood volume.

**BIOCHEMISTRY:** pH and pK Henderson – Hasselbalch equation – Properties and regulation of enzyme activity; role of high energy phosphates in bioenergetics – Sources, daily requirements, action and toxicity of vitamins – Metabolism of Lipids, carbohydrates, proteins; disorders of their metabolism – Chemical nature, structure, synthesis and functions of nucleic acids and proteins – distribution and regulation of body water and minerals including trace elements – Acid base balance – Clinical importance of enzymes. **PATHOLOGY:** Reaction of cell and tissue of injury; inflammation and repair, disturbances of growth and cancer; genetic diseases – Pathogenesis and histo-pathology of; rheumatic and ischaemic heart disease – bronchogenic carcinoma, carcinoma breast, oral cancer, cancer colon – Etiology, pathogenesis and histopathology of: Peptic ulcer – Cirrhosis liver – Glomerulonephritis – Lobar pneumonia – Acute osteomyelitis – Hepatitis – acute pancreatitis – FINE needle aspiration cytology(FNAC) – **MICROBIOLOGY:** Growth of micro-organisms; sterilization and disinfection bacterial genetics; virus-cell interactions – Immunological principles; acquired immunity; immunity in infections caused by viruses – Diseases caused by and laboratory diagnosis of staphylococcus Enterococcus; Salmonella; Shigella; Escherichia; Pseudomonas, Vibrio; Adenoviruses; Herpes viruses (including Rubella); Fungi Protozoa; Helminths – AIDS – diagnostic procedure – **PHARMACOLOGY:** Drug receptor interaction, mechanism of drug action – Mechanism of action, dosage, metabolism and side effects of the – Pilocarpine, Terbutaline, Metoprolol, Diazepam, Acetylsalicylic Acid Ibuprofen, Furosemide, Metronidazole, Chloroquin, - Mechanism of action, dosage and toxicity of the antibiotics: Ampicillin, Cephalexin, Doxycycline, Chloramphenicol, Rifampin, Cefotaxime – Indications, dosage, side-effects and contraindications of the following anti-cancer drugs:- Methotrexate, vincristin, Tamoxifen – Classification, route of administration, mechanism of action and side effects of the :- General anaesthetics, Hypnotics, Analgesics – Forensic Medicine and Toxicology: Forensic examination of injuries and wounds – Physical and chemical examination of blood and seminal stains – Details of forensic examination for establishing identification of persons, pregnancy, abortion rape and virginity.

**GENERAL MEDICINES:-** 1. Disorders of CNS: Meningitis, Encephalitis, Cerebrovascular diseases, epilepsy, Neoplasms - 2. Disorders of CVS - Rheumatic, Ischaemic and congenital heart diseases, Hypertension - 3. Respiratory diseases - Acute and Chronic infections, bronchial asthma, Neoplasms, Industrial diseases - 4. Excretory systems - Acute glomerulonephritides, Nephrotic syndrome, chronic pyelonephritis and renal failure - 5. Gastro-Intestinal disorders - Acid Peptic diseases, Malabsorption syndromes, viral hepatitis, Cirrhosis of liver, pancreatitis - 6. Hematological diseases - Anemias, Coagulation failures, Leukemias, Lymphomas, Hodgkin's disease - 7. Metabolic disorders - Diabetes, Thyroid disorders, parathyroid diseases - 8. Miscellaneous - Skin disorders - Allergies, Drug reactions, parasitic infestations, Psychiatric disorders: Schizophrenia and depression - 9. Community Medicine - Malaria, Filariasis and various national health programmes - Leprosy, T.B., S.T.D. including AIDS - Parasitic infestations - Hook worm, round worm, Guinea worm, Amoebiasis - 10. Nutritional disorders - Normal nutrition, and deficiency diseases in India.

**GENERAL SURGERY:** 1. Cervical lymph nodes, parotid tumour and oral cancers - 2. Peripheral arterial diseases - varicose veins, Filariasis - 3. Dysfunctions of Thyroid, Parathyroid, adrenal tumours and the surgical aspects - 4. Abscess breast and cancer breast - 5. Acute and Chronic Appendicitis, bleeding peptic ulcer, T.B. of bowel, intestinal obstructions - 6. Renal mass, retention of urine, Benign Prostatic Hypertrophy - 7. Spleno-Megaly, Chronic Cholecystitis, portal Hypertension, liver abscess, peritonitis, Cancer head of Pancreas - 8. Direct and indirect Inguinal Hernias and their complications - 9. Fracture of Femur, Spine - Polytrauma and their management.

**OBSTETRIC AND GYNECOLOGY + FAMILY PLANNING:** 1. Diagnosis of Pregnancy, Antenatal Screening for high-risk pregnancy, Feto-placental development - 2. Labour management, complications of 3rd stage, post partum hemorrhage, Inversion, Resuscitation of the newborn and premature baby - 3. Diagnosis and management of Pregnancy - induced - hypertension, Eclampsia, anemias - 4. Principles of contraceptive methods - Intrauterine Device, oral pills, Tubectomy and Vasectomy. Medical termination of pregnancy including its legal aspects and complications - 5. Etiology, Clinical features, diagnosis and mass screening of cancer cervix, leucorrhoea, Infertility, Abnormal Uterine bleeding, Amenorrhoea - 6. Miscellaneous: Objectives, components of National Health and Family Welfare Programmes - Maternal and Child health - Family welfare - Nutrition - Immunisations - Population trends and its effect on health and Development.

**Paper –III (Concerned Subject)**

**1. OBSTETRICS AND GYNECOLOGY**

**Basic Sciences**

- Normal & abnormal development, structure and function of (female & male) urogenital system and female breast
- Applied Anatomy of genito-urinary system, abdomen, pelvis, pelvis floor, anterior abdominal wall, upper thigh (inguinal ligament, inguinal canal, vulva, rectum and anal canal).
- Physiology of Spermatogenesis.
- Endocrinology related to male and female reproduction. (Neurotransmitters).
- (Anatomy &) physiology of urinary & lower GI (Rectum I anal canal) tract. Development, structure & function of placenta, umbilical cord & amniotic fluid.
- Anatomical & physiological changes in female genital tract during pregnancy.
- Anatomy of fetus, fetal growth-& development, fetal physiology & fetal circulation.
- Physiological & Neuro-endocrinal changes during puberty, adolescence, menstruation, ovulation, fertilization, climacteric & menopause.
- Biochemical and endocrine changes during pregnancy, including systemic changes in cardiovascular, hematological, renal hepatic, renal, hepatic and other systems.
- Biophysical and biochemical changes in uterus and cervix during pregnancy & labour.
- Pharmacology of identified drugs used during pregnancy, labour, post partum period in reference to their absorption, distribution, excretion, (hepatic) metabolism, transfer of the drugs across the placenta, effect of the drugs (used) on labour, on fetus, their excretion, (hepatic) metabolism, transfer of the drugs across the placenta, effect of the drugs (used) on labour, on fetus, their excretion through breast milk.
- Mechanism of action, excretion, metabolism of identified drugs used in the management of Gynaecological disorder.
- Role of hormones in Obstetrics & Gynaecology
- Markers in Obstetric & Gynaecology – Non neoplastic and Neoplastic Diseases
- Pathophysiology of ovaries, fallopian tubes, uterus, cervix, vagina and external genitalia in healthy and diseased conditions.
- Normal and abnormal pathology of placenta, umbilical cord, amniotic fluid and fetus
- Normal and abnormal microbiology of genital tract. Bacterial, viral & parasitical infections responsible for maternal, fetal and gynaecological disorders.
- Humoral and cellular immunology in Obstetrics & Gynaecology.
- Gametogenesis, fertilization, implantation & Early development of embryo.
- Normal Pregnancy, physiological changes during pregnancy, labour & puerperium.

- Immunology of pregnancy.
- Lactation.

#### **Medical genetics:**

- Basic medical genetics including cytogenetics.
- Pattern of inheritance
- Chromosomal abnormalities – types, incidence, diagnosis, management and risk of recurrence
- General principals of Teratology
- Screening, counseling and prevention of developmental abnormalities.
- Birth defects – genetics, teratology & counseling.

#### **Antenatal Care:**

- Prenatal care of normal pregnancy including examination, nutrition, immunization & follow up.
- Identification and management of complications and complicated of pregnancy – Abortion, Ectopic pregnancy, Vesicular mole, Gestational Trophoblastic Diseases, Hyperemesis gravidarum, Multiple pregnancy, Ante Partum Hemorrhage, Pregnancy Induced Hypertension, Pre-eclampsia, Eclampsia, other associated hypertensive disorders, Anemia, Rh incompatibility, Diabetes, Heart disease, Renal & hepatic disease, Preterm and Post term pregnancies, Intra Uterine Fetal Growth Retardation.
- Neurological, hematological, dermatological diseases, immunological disorders and other medical & surgical disorders/ problems associated with pregnancy, multiple pregnancies, Hydramnios, Oligohydramnios.
- Diagnosis of contracted pelvis (CPD) and its management.
- High-risk pregnancy -
  - Pregnancy associated with complications, medical & surgical problems,
  - Preterm labour, premature rupture of membranes and Prolonged gestation.
  - Blood group incompatibilities.
  - Recurrent pregnancy wastage.
- Evaluation of fetal & maternal health in complicated pregnancy by making use of diagnostic modalities including modern ones (USG, Doppler, Electronic monitors) and plan for safe delivery for mother and fetus. Identifying fetus at risk & its management.
- Infections in pregnancy. (Bacterial, viral, fungal, protozoal)
  - Malaria, Toxoplasmosis.
  - Viral- Rubella, CMV, Herpes, HIV, Hepatic viral infections (B, C etc)
  - Sexually transmitted infections. (STDs)
  - Mother to fetal transmission of infections.
- Identification & management of fetal malpositions and malpresentations
- Management of pregnancies complicated by medical, surgical (with other specialties as required) & gynecological diseases.

- Anemia, hematological disorders
  - Respiratory, Heart, Renal, Liver, skin diseases.
  - Gastro Intestinal, Hypertensive, Autoimmune, Endocrine disorders.
  - Associated Surgical Problems.
- Acute Abdomen (surgical emergencies - appendicitis & GI emergencies).  
Other associated surgical problems.
    - Gynaecological disorders associated with pregnancy - congenital genital tract developmental anomalies, Gynaec pathologies - fibroid uterus, Carcinoma Cervix, Genital prolapse etc.
    - Prenatal diagnosis (of fetal problems & abnormalities), treatment - Fetal therapy
    - M.T.P act and P.N.D.T act etc
    - Vital statistics
    - Recent advances in Obstetrics

#### **Intrapartum care:**

- Normal labour - mechanism & management.
- Partographic monitoring of labour progress, recognition of abnormal labour and its appropriate management.
- Identification and conduct of abnormal labour and complicated delivery - breech, forceps delivery, caesarian section, destructive operations.
- Induction and augmentation of labour.
- Management of abnormal labour – Abnormal pelvis, soft tissue abnormalities of birth canal, mal-presentation, mal-positions of fetus, abnormal uterine action, obstructed labour and other dystocias.
- Analgesia & anaesthesia in labour
- Maternal & fetal monitoring in normal & abnormal labour (including electronic fetal monitoring).
- Identification and management of intra partum complications, Cord presentation, complication of 3<sup>rd</sup> stage of labour – Retained placenta, Inversion of uterus, Rupture of uterus, Post Partum Hemorrhage.

#### **Post Partum**

- Complication of 3<sup>rd</sup> stage of labour - retained placenta, inversion of uterus, post partum hemorrhage, rupture of uterus, Management of primary & secondary post partum hemorrhage, Retained placenta, uterine inversion. Post-partum collapse, Amniotic fluid embolism.
- Identification & management of genital tract trauma – perineal tear, cervical/vaginal tear, episiotomy complications, rupture uterus.
- Management of critically ill woman.
- Post partum shock, sepsis & psychosis.
- Post partum contraception.
- Breast feeding practice; counseling & importance of breast-feeding. Problems in breast-feeding and their management, Baby friendly practices.
- Problems of newborn – at birth (resuscitation), management of early neonatal problems.
- Normal and abnormal puerperium – sepsis, thrombophlebitis, mastitis, psychosis.

- Hematological problems in Obstetrics including coagulation disorders.
- Use of blood and blood components/products.

### **NEW BORN**

- Care of new born: Normal and high risk new born (including NICU care).
- Asphyxia and neonatal resuscitation.
- Neonatal sepsis - prevention, detection & management.
- Neonatal hyper-bilirubinemia - investigation & management.
- Birth trauma - Detection & management.
- Detection and management of fetal/neonatal malformation.
- Management of common neonatal problems.

### **CLINICAL GYNAECOLOGY**

- Epidemiology and aetiopathogenesis of gynaecological disorders.
- Diagnostic modalities and management of common benign and malignant gynaecological diseases (diseases of genital tract):
- Fibroid uterus
- Endometriosis & Adenomyosis
- Endometrial hyperplasia
- Genital Prolapse (uterine & vaginal)
- Cervical erosion, cervicitis, cervical polyps, cervical neoplasia (CIN).
- Vaginal cysts, vaginal infections, vaginal neoplasia (VIN)
- Benign Ovarian pathologies
- Malignant genital neoplasia – of Ovary, Fallopian Tubes, uterus, Cervix, Vagina,
- Vulva and Gestational Trophoblastic diseases, Ca. Breast.
- Diagnosis and surgical management of clinical conditions related to congenital malformations of genital tract. Reconstructive surgery in gynaecology.
- Intersex, ambiguous sex and chromosomal abnormalities.
- Reproductive endocrinology: Evaluation of Primary / secondary Amenorrhea, management of Hyperprolactinemia, Hirsutism, Chronic anovulation, PCOD, thyroid and other endocrine dysfunctions.
  - Infertility – Evaluation and management.
  - Methods of Ovulation Induction
  - Tubal (Micro) surgery
  - Management of immunological factors of Infertility
  - Male infertility
  - Obesity & other Infertility problems.
- Introductory knowledge of Advanced Assisted reproductive Techniques (ART)
- Reproductive tract Infections: Prevention, diagnosis & treatment of
  - HIV
  - STD and Other Infections

- Genital Tuberculosis
- ▶ Principals of radiotherapy and chemotherapy in gynaecological malignancies. Choice, schedule of administration & complications of such therapies.
- ▶ Rational approach in diagnosis and management of endocrinal abnormalities such as: menstrual abnormalities, amenorrhea (primary/secondary), dysfunctional uterine bleeding, polycystic ovarian disease, hyperprolactenemia (galactorrhoea), hyperandrogenism, thyroid – pituitary –adrenal disorders, menopause and its treatment (HRT)
- ▶ Urological problems in Gynaecology – Diagnosis and management.
  - Urinary tract infection
  - Incontinence and Urogenital Fistulae
  - Other urological problems
- ▶ Orthopedic problems in Gynaecology
- ▶ Menopause: management (HRT) and prevention of its complications
- ▶ Endoscopy (Laparoscopy - Hysteroscopy)
  - Diagnostic & simple therapeutic procedures
  - Recent advances in gynaecology - Diagnostic & therapeutic
  - Pediatric, Adolescent & Geriatric Gynaecology
  - Introduction to Advance Operative procedures.

#### **OPERATIVE GYNAECOLOGY**

- Abdominal Hysterectomy
- Vaginal Hysterectomy
- Surgical Procedures for genital prolapse, fibromyoma, endometriosis, ovarian, adenexal, uterine, cervical, vaginal and vulval pathologies.
- Urinary incontinence.
- Surgical treatment for urinary & other fistulae
- Operative Endoscopy.

#### **FAMILY WELFARE & DEMOGRAPHY**

- Definition of demography and its importance in Obstetrics and Gynaecology.
- Statistics regarding maternal mortality, Perinatal mortality / morbidity, birth rate, fertility rate.
- Organizational and operational aspects of National health policies & programs, in relation to population and family welfare including RCH.
- Various temporary and permanent methods of male and female contraceptive methods.
- Knowledge of in contraceptive techniques (including Recent advances in contraceptive technology)

**Temporary methods like :**

- Chemical contraceptives and Barrier methods
- Hormonal contraception
- IUCD

**Permanent methods like :**

- Tubectomy - Laparoscopic Sterilisation
- Mini lap. tubal ligation



### **Reconstructive surgeries like** - Tuboplasty - Vaso Vasostomy

- Medical termination of pregnancy: act, its implementation, providing safe and adequate abortion services.
- Demography & population dynamics.
- Contraception (fertility control)

### **Male & Female Infertility**

- History taking, examination and investigation.
- Causes and management of male infertility.
- Indications, procedures of Assisted Reproductive Techniques in relation to male infertility problems.

### **Health of Adolescent girls and Post Menopausal women**

- Recognize importance of good health of adolescent and postmenopausal women.
- Identification and management of health problems of postmenopausal women.
- Understanding and planning and intervention program of social, educational and health needs of adolescent girls & menopausal women.
- Education regarding rights and confidentiality of women's health, specifically related to reproductive function, sexuality, contraception and safe abortion.
- Geriatric problems.

### **Reproductive tract and 'HIV' Infection**

- Epidemiology of RTI and HIV infection in Indian women of reproductive age group.
- Cause, effect and management of these infections.
- HIV infections in pregnancy, its effects and management.
- Relationship of RTI & HIV with gynaecological disorders.
- Planning and implementation of preventive strategies.

### **Medico legal Aspects**

- Knowledge and correct application of various acts and laws while practicing obstetrics and gynaecology, particularly,
- MTP act and sterilization, Preconception and P.N.D.T. Act.
- Knowledge of importance of proper recording of facts about history, examination findings, investigation reports and treatment administered in all patients.
- Knowledge of steps recommended for examination and management of rape cases.
- Knowledge of steps taken in the event of death of a patient.

### **Environment and Health**

- Concept of safe disposal of human body fluids and other materials.
- Effect of environment on pregnancy outcome.

**Practical aspects of the subject including case record writing, various diagnostic tests and basic knowledge of functioning of clinical instruments related to the subject.**

## 2. ANESTHESIA

- History of Anaesthesiology.
- Basic Sciences related to Anaesthesia including Anatomy, Physiology, Pharmacology, Biochemistry, Pathology, Immunology and Genetics.
- Medicine applied to Anaesthesiology.
- Physics related to Anaesthesiology, Electronics and Lasers in Anaesthesiology. Computer, Internet / Medline and its uses and applications.
- **Anaesthesiology.**
  - Pre anaesthetic evaluation and preparation.
  - Principles and Practice of Anaesthesiology including pre, per and post operative care of patients belonging to General Surgery, Obstetrics and Gynecology, ENT, Ophthalmology, Orthopedics, and other super specialties like Cardio thoracic Surgery, Neurosurgery, Plastic Surgery and Surgical Endocrinology, Surgical Oncology, Pediatric, Urology, Dental Surgery, Laparoscopic Surgery, Organ transplantation etc.
  - Blood transfusion-Fluid and Electrolyte balance, - Acid Base Balance.
  - Fires and Explosion in operation theatre.
  - Operation Theatre sterilization procedures.
  - Different methods of anaesthetic techniques.
  - Regional anaesthesia including spinal, epidural and caudal etc.
  - Local Anaesthesia including peripheral nerve blocks and sympathetic nerve block, etc.
  - Complications in Anaesthesiology and their management both per and post operatively.
  - Pain Clinic organization and management. Pain pathway and management of acute and chronic pain.
  - Respiratory therapy and management of both acute and chronic respiratory insufficiencies and ventilator commitments in intensive care unit, surgical intensive care unit, medical intensive care unit, neuro surgical intensive care unit and trauma care.
  - Critical Care Anaesthesiology and Trauma Care Unit and Resuscitation.
    - Anaesthesia in abnormal environments like high altitude anaesthesia etc.
    - Anaesthesia for day care surgery.
    - Anaesthesia for diagnostic procedure like endoscopies, Computerized Tomography Scan (C.T. Scan) Magnetic Resonance Imaging (M.R.I.) etc.
- Informed consent/ medico-legal issues: understanding the implications of acts of omission and commission in practice. Issues regarding consumer protection act. Implications in medico-legal cases.
- Communication skills with colleagues, teachers, patients, and patients relatives.
- Principles of anaesthesia audit, understanding the audit process and outcome; methods adopted for the same.
- Principles of Evidence Based Medicine and its application in anaesthetic practice.
- Medical ethics/social responsibilities of the anesthesiologists.
- Record keeping: Ability to keep records as scientifically as possible; with the knowledge of computer.
- Medical Audit: ability to maintain track of records and audit the results and economics

- Basic sciences related to anesthesiology: Theoretical knowledge, frequent visits to anatomy dissection halls and museum, Physiology laboratories etc., to revise the relevant subjects.
- Theoretical knowledge of Anaesthesiology and Resuscitation: Special emphasis on clinical examination of patients, learning clinical methods, arriving at correct diagnosis.

Basic knowledge about Computers in Anaesthesia, Medline, Internet.

- Bio Statistics.
- Medical Audit.
- Medico-legal Aspects.
- Research Methodology.
- Evidence Based Medicine.
- Medical Ethics and Social responsibilities of Anesthesiologists

Anaesthesia Skills

- Pre anaesthetic evaluation.
- Monitoring of patients throughout perioperative period. Become skilled in using and interpreting the following routine noninvasive monitors intra operatively
- Electro Cardiography (ECG) with ST segment analysis
- Non Invasive Blood Pressure monitoring (NIBP)
- Capnograph: values and changes in waveform
- Pulse oximetry: values and changes in waveform
- Neuromuscular blockade monitor
- Central Venous Pressure, values and waveform
- Setting up of anaesthesia machine, monitor and ventilator.
- Conduct of anaesthesia for major surgeries; knowledge about the complications of anaesthesia.
- Assisting for short anaesthesia initially and later on doing independently under supervision
- Conduct of anaesthesia in Out Patient Department (OPD) and in remote areas
- Cardio Pulmonary Resuscitation (CPR) training and mastering of Basic Life Support (BLS) and Advanced Cardiac Life Support (ACLS)

Theoretical knowledge of allied subjects, subspecialties of anaesthesia. Assisting senior anesthesiologists in specialized branches like pediatric surgery, cardio thoracic surgery, Neuro anaesthesia, Plastic surgery, and other specialties in anaesthesia and critical care trauma etc.

Anaesthetic Skills:

- a) Anaesthetizing patients without assistance but under supervision.
- b) Identifying the complication of anaesthesia and manage them independently but under supervision.
- c) Setting up of anaesthesia machine, monitor and ventilator independently.

**Practical aspects of the subject including case record writing, various diagnostic tests and basic knowledge of functioning of clinical instruments related to the subject.**

### 3. PEDIATRICS

#### Basic Sciences

- Principles of inheritance, chromosomal disorders, single gene disorders, multifactorial/polygenic disorders, genetic diagnosis and prenatal diagnosis, pedigree drawing
- Embryogenesis of different organ systems especially heart, genitourinary system, gastrointestinal tract Applied anatomy and functions of different organ systems
- Physiology of micturition and defecation; placental physiology; fetal and neonatal circulation; regulation of temperature, blood pressure, acid base balance, fluid electrolyte balance and calcium metabolism
- Vitamins and their functions
- Hematopoiesis, hemostasis, bilirubin metabolism
- Growth and development at different ages, growth charts; puberty and its regulation
- Nutrition, requirements and sources of various nutrients
- Pharmacokinetics of common drugs, microbial agents and their epidemiology
- Basic immunology, ethical and medico-legal issues

**Understanding, where necessary, the definition, epidemiology, etiopathogenesis, presentation, complications, differential diagnosis and treatment of the following, but not limited to:**

#### Growth and development

- principles of growth and development
- normal growth and development,
- abnormal growth and development
- sexual maturation and its disturbances
- failure to thrive and short stature
- Autism

#### Neonatology

- perinatal care
- low birth weight
- care in the labor room and resuscitation
- newborn feeding
- prematurity
- respiratory distress
- common transient phenomena
- apnea
- infections
- anemia and bleeding disorders
- jaundice
- gastrointestinal disorders
- neurologic disorders
- malformations
- renal disorders
- understanding of perinatal medicine
- thermoregulation and its disorders

### **Nutrition**

- maternal nutritional disorders;
- nutrition for the low birth weight
- impact on fetal outcome
- breast feeding
- infant feeding including
- vitamin and mineral deficiencies complementary feeding
- protein energy malnutrition
- obesity
- adolescent nutrition
- parenteral and enteral nutrition
- nutritional management of systemic illness (GI, hepatic, renal illness)

### **Cardiovascular**

- congenital heart diseases
- rheumatic fever and rheumatic heart (cyanotic and acyanotic) disease
- infective endocarditis
- arrhythmia
- disease of myocardium
- diseases of pericardium (cardiomyopathy, myocarditis)
- systemic hypertension

### **Respiratory**

- congenital and acquired disorders of nose
- infections of upper respiratory tract tonsils and adenoids
- obstructive sleep apnea
- congenital anomalies of lower respiratory tract
- acute upper airway obstruction
- foreign body in larynx trachea & bronchus
- subglottic stenosis (acute, chronic)
- asthma
- pneumonia, bronchiolitis
- aspiration pneumonia, GER
- recurrent, interstitial pneumonia
- suppurative lung disease
- atelectasis
- lung cysts, mediastinal mass
- diseases of pleura

### **Gastrointestinal and liver disease**

- disease of oral cavity
- disorders of deglutition and esophagus
- peptic ulcer disease
- congenital pyloric stenosis
- intestinal obstruction
- acute & chronic pancreatic disorders
- malabsorption syndrome
- acute, persistent and chronic diarrhea

- irritable bowel syndrome
- inflammatory bowel disease
- Hirschsprung disease
- anorectal malformations
- hepatitis
- hepatic failure
- chronic liver disease
- Budd-Chiari syndrome
- metabolic diseases of liver
- cirrhosis and portal hypertension

### **Nephrologic and Urologic disorders**

- acute and chronic glomerulonephritis
- nephrotic syndrome
- hemolytic uremic syndrome
- urinary tract infection
- VUR and renal scarring
- involvement in systemic diseases
- renal tubular disorders
- neurogenic bladder, voiding dysfunction
- congenital and hereditary renal disorders
- renal and bladder stones
- posterior urethral valves
- hydronephrosis
- undescended testis, hernia, hydrocoele
- Wilms tumor

### **Neurologic disorders**

- seizure and non-seizure paroxysmal events
- epilepsy, epileptic syndromes
- meningitis, encephalitis
- brain abscess
- febrile encephalopathies
- Guillain-Barre syndrome
- neurocysticercosis and other neuroinfestations
- HIV encephalopathy
- SSPE
- cerebral palsy
- neurometabolic disorders
- neurodegenerative disorders
- neuromuscular disorders
- mental retardation
- learning disabilities
- muscular dystrophies
- acute flaccid paralysis and AFP surveillance
- malformations
- movement disorders
- Tumors

**Hematology & Oncology**

- deficiency anemias
- hemolytic anemias
- aplastic anemia
- pancytopenia
- thrombocytopenia
- disorders of hemostasis
- blood component therapy
- transfusion related infections
- bone marrow transplant/stem cell transplant
- acute and chronic leukemia
- myelodysplastic syndrome
- Lymphoma
- neuroblastoma
- hypercoagulable states

**Endocrinology**

- hypopituitarism/hyperpituitarism
- diabetes insipidus
- pubertal disorders
- hypo- and hyper-thyroidism
- adrenal insufficiency
- Cushing's syndrome
- adrenogenital syndromes
- diabetes mellitus
- hypoglycemia
- short stature
- gonadal dysfunction and intersexuality
- obesity

**Infections**

- bacterial (including tuberculosis)
- viral (including HIV)
- fungal
- parasitic
- rickettsial
- mycoplasma
- protozoal and parasitic
- nosocomial infections
- control of epidemics and infection prevention
- safe disposal of infective material

**Emergency and Critical Care**

- emergency care of shock
- cardio-respiratory arrest
- respiratory failure
- acute renal failure
- status epilepticus
- acute severe asthma
- fluid and electrolyte disturbances
- acid-base disturbances

- poisoning
- accidents
- scorpion and snake bites

### **Immunology and Rheumatology**

- arthritis (acute and chronic)
- vasculitides
- immunodeficiency syndromes
- systemic lupus erythematosus

### **ENT**

- acute and chronic otitis media
- hearing loss
- post-diphtheritic palatal palsy
- acute/chronic tonsillitis/adenoids
- allergic rhinitis/sinusitis
- foreign body

### **Skin Diseases**

- exanthematous illnesses
- vascular lesions
- pigment disorders
- vesicobullous disorders
- infections
- Steven-Johnson syndrome
- atopic, seborrheic dermatitis
- drug rash
- alopecia
- ichthyosis

### **Eye problems**

- refraction & accommodation
- partial/total loss of vision
- Cataract
- night blindness
- strabismus
- conjunctival and corneal disorders
- disorders of retina, including tumors

### **Behavioral and Developmental disorders**

- rumination, pica
- enuresis, encopresis
- sleep disorders
- habit disorders
- breath holding spells
- anxiety disorders
- mood disorders
- temper tantrums
- attention deficit hyperactivity disorders
- autism



**Social/Community Pediatrics**

- National health programs related to child health
- IMNCI
- Vaccines: constituents, efficacy, storage, contraindications and adverse reactions
- rationale and methodology of pulse polio immunization
- child labor, abuse, neglect
- adoption
- disability and rehabilitation
- rights of the child
- National policy of child health and population
- juvenile delinquency
- Principles of prevention, control of infections (food, water, soil, vector borne)
- Investigation of an epidemic

**Orthopedics**

- major congenital orthopedic deformities
- bone and joint infections
- common bone tumors

**Approach to Clinical Problems****Growth and development**

- precocious and delayed puberty
- developmental delay
- impaired learning

**Neonatology**

- low birth weight newborn
- sick newborn

**Nutrition**

- lactation management and complementary
- protein energy malnutrition feeding (underweight, wasting, stunting)
- failure to thrive and micronutrient deficiencies

**Cardiovascular**

- Murmur
- cyanosis
- congestive heart failure
- systemic hypertension
- arrhythmia
- shock

**GIT and Liver**

- Acute diarrhea
- persistent and chronic diarrhea
- abdominal pain and distension
- ascites
- vomiting

- constipation
- gastrointestinal bleeding
- jaundice
- hepatosplenomegaly
- hepatic failure and encephalopathy

**Respiratory**

- Cough/chronic cough
- hemoptysis
- wheezy child
- respiratory distress

**Infections**

- acute onset pyrexia
- prolonged pyrexia with and
- recurrent infections without localizing signs
- nosocomial infections
- fever with exanthem

**Renal**

- Hematuria/dysuria
- bladder/bowel incontinence
- voiding dysfunctions
- renal failure (acute and chronic)
- hypertension

**Hematology and Oncology**

- anemia
- bleeding

**Neurology**

- limping child
- convulsions
- paraplegia, quadriplegia
- cerebral palsy
- macrocephaly and microcephaly
- floppy infant
- acute flaccid paralysis
- headache

**Endocrine**

- thyroid swelling
- ambiguous genitalia
- obesity
- short stature

**Miscellaneous**

- skin rash
- lymphadenopathy
- epistaxis
- proptosis
- arthralgia, arthritis

**Practical aspects of the subject including case record writing, various diagnostic tests and basic knowledge of functioning of clinical instruments related to the subject.**

#### 4. GENERAL MEDICINE

##### Basic Sciences

1. Basics of human anatomy as relevant to clinical practice
  - surface anatomy of various viscera
  - neuro-anatomy
  - important structures/organs location in different anatomical locations in the body
  - common congenital anomalies
2. Basic functioning of various organ-system, control of vital functions, pathophysiological alteration in diseased states, interpretation of symptoms and signs in relation to pathophysiology.
3. Common pathological changes in various organs associated with diseases and their correlation with clinical signs; understanding various pathogenic processes and possible therapeutic interventions possible at various levels to reverse or arrest the progress of diseases.
4. Knowledge about various microorganisms, their special characteristics important for their pathogenetic potential or of diagnostic help; important organisms associated with tropical diseases, their growth pattern/life-cycles, levels of therapeutic interventions possible in preventing and/or eradicating the organisms.
5. Knowledge about pharmacokinetics and pharmaco-dynamics of the drugs used for the management of common problems in a normal person and in patients with diseases kidneys/liver etc. which may need alteration in metabolism/excretion of the drugs; rational use of available drugs.
6. Knowledge about various poisons with specific reference to different geographical and clinical settings, diagnosis and management.
7. Research Methodology and Studies, epidemiology and basic Biostatistics.
8. National Health Programmes.
9. Biochemical basis of various diseases including fluid and electrolyte disorders; Acid base disorders etc.
10. Recent advances in relevant basic science subjects. Systemic Medicine
11. Preventive and environmental issues, including principles of preventive health care, immunization and occupational, environmental medicine and bio-terrorism.
12. **Aging and Geriatric Medicine:**
  - Biology
  - epidemiology
  - neuro-psychiatric aspects of aging

**13. Clinical Pharmacology:**

- principles of drug therapy
- biology of addiction
- complementary and alternative medicine

**14. Genetics:**

- overview of the paradigm of genetic contribution to health and disease
- principles of Human Genetics
- single gene and chromosomal disorders
- gene therapy

**15. Immunology:**

- innate and adaptive immune systems
- mechanisms of immune mediated cell injury  
transplantation immunology

**16. Cardio-vascular diseases:**

- Approach to the patient with possible cardio-vascular diseases
- heart failure
- arrhythmias
- hypertension
- coronary artery disease
- valvular heart disease
- infective endocarditis
- diseases of the myocardium and pericardium
- diseases of the aorta and peripheral vascular system

**17. Respiratory system:**

- approach to the patient with respiratory disease
- disorders of ventilation
- asthma
- Congenital Obstructive Pulmonary Disease (COPD)
- Pneumonia
- pulmonary embolism
- cystic fibrosis
- obstructive sleep apnoea syndrome and diseases of the chest wall, pleura and mediastinum

**18. Nephrology:**

- approach to the patient with renal diseases
- acid-base disorders
- acute kidney injury
- chronic kidney disease
- tubulo-interstitial diseases
- nephrolithiasis
- Diabetes and the kidney
- obstructive uropathy and treatment of irreversible renal failure

**19. Gastro-intestinal diseases:**

- approach to the patient with gastrointestinal diseases
- gastrointestinal endoscopy
- motility disorders

- diseases of the oesophagus
- acid peptic disease
- functional gastrointestinal disorders
- diarrhea
- irritable bowel syndrome
- pancreatitis and diseases of the rectum and anus

**20. Diseases of the liver and gall bladder:**

- approach to the patient with liver disease
- acute viral hepatitis
- chronic hepatitis
- alcoholic and non-alcoholic steatohepatitis
- cirrhosis and its sequelae
- hepatic failure and liver transplantation
- diseases of the gall bladder and bile ducts

**21. Haematologic diseases:**

- Haematopoiesis
  - Anaemias
  - leucopenia and leucocytosis
  - myelo-proliferative disorders
- disorders of haemostasis and haemopoietic stem cell transplantation

**22. Oncology:**

- Epidemiology
- biology and genetics of cancer
- paraneoplastic syndromes and endocrine manifestations of tumours
- leukemias and lymphomas
- cancers of various organ systems and cancer chemotherapy

**23. Metabolic diseases** - inborn errors of metabolism and disorders of metabolism.

**24. Nutritional diseases** - nutritional assessment, enteral and parenteral nutrition, obesity and eating disorders.

**25. Endocrine** - principles of endocrinology, diseases of various endocrine organs including diabetes mellitus.

**26. Rheumatic diseases:**

- approach to the patient with rheumatic diseases
- osteoarthritis
- rheumatoid arthritis
- spondyloarthropathies
- systemic lupus erythematosus (SLE)
- polymyalgia
- rheumatic fibromyalgia and amyloidosis

### 27. **Infectious diseases:**

- Basic consideration in Infectious Diseases
- clinical syndromes
- community acquired clinical syndromes
- Nosocomial infections
- Bacterial diseases - General consideration, diseases caused by gram - positive bacteria, diseases caused by gram - negative bacteria
- miscellaneous bacterial infections
- Mycobacterial diseases
- Spirochetal diseases
- Rickettsia
- Mycoplasma and Chlamydia
- viral diseases
- DNA viruses
- DNA and RNA respiratory viruses
- RNA viruses
- fungal infections, protozoal and helminthic infections .

28. **Neurology** - approach to the patient with neurologic disease, headache, seizure disorders and epilepsy, coma, disorders of sleep, cerebrovascular diseases, Parkinson's disease and other movement disorders, motor neuron disease, meningitis and encephalitis, peripheral neuropathies, muscle diseases, diseases of neuromuscular transmission and autonomic disorders and their management.

29. The mental condition characterized by complete self absorption with reduced ability to communicate with the outside world (Autism), abnormal functioning in social interaction with or without repetitive behaviour and/or poor communication etc.

### 30. **Dermatology:**

- Structure and functions of skin
- infections of skin
- papulo-squamous and inflammatory skin rashes
- photo-dermatology
- erythroderma
- cutaneous manifestations of systematic diseases
- bullous diseases
- drug induced rashes
- disorders of hair and nails
- principles of topical therapy

**Practical aspects of the subject including case record writing, various diagnostic tests and basic knowledge of functioning of clinical instruments related to the subject.**

## 5. GENERAL SURGERY

### **Basic Sciences:**

Anatomy, physiology, biochemistry, microbiology and pathology, as found in current text books. These standard topics are recommended to be studied in as much as they are applicable to the practice of surgery. The stress is on applied anatomy and surgical pathology. Topics for study to include **Anatomy. Physiology. Pathology. Microbiology, Pharmacology. Anesthesia** and **Radiology**. Pathology- Concurrent study- recommend daily Grossing sessions. Weekly Surgical pathology session and monthly CPCs Radiology- Concurrent study-adequate exposure to modern imaging modalities like USG, CT, MRI and angiography.

### **History of Surgery**

**Clinical History and examination-** detailed systematic history taking. Clinical examination of various systems. Coming to a provisional working diagnosis.

**Rationale of diagnostic tests-** Ordering diagnostic tests with prioritizing the needs based on the clinical, hospital and the patient's socioeconomic condition.

**Informed consent / Medico legal issues-** Understanding the implications of acts of omission and commission in practice. Issues regarding Consumer Protection Act- Implications in a medico-legal case like accidents, assaults etc.

**Communication skills with patients-** Understanding clarity in communication, compassionate explanations and giving emotional support to at the time of suffering and bereavement.

**Principles of surgical audit-** Understanding the audit of process and outcome Methods adopted for the same. Basic statistics.

**Principles of evidence based medicine-** Understanding journal based literature study; the value of text book, reference book articles; value of review articles; original articles and their critical assessment. Understanding the value of retrospective, prospective, randomized controlled and blinded studies- understanding the principles and meanings of various biostatistical tests applied in these studies.

### **Medical ethics / Social responsibilities of surgeons**

**Use of computers in surgery-** Components of a computer; its use in practice- principles of word processing, spread sheet functions, database and presentation; the internet and its uses. The value of computer based systems in bio- medical equipment.

Health insurance, health Care financing

Undertaking clinical audit

Prospective data collection / writing case reports and clinical papers

Giving presentations / Computer presentations

**Preoperative workup-** concept of fitness for surgery; basic medical workup; workup in special situations like, diabetes, renal failure, cardiac and respiratory illness; risk stratification;

Principles of operative surgery like asepsis, antisepsis, sterilization

Surgical sutures, drains, prosthetic grafts.

**Postoperative care**- concept of recovery room care; airway management assessment of wakefulness; management of cardiovascular instability in this period; criteria for shifting to a ward; pain management.

**Basic surgical instrumentation**- Principles of surgical instrumentation; their maintenance and sterilization. Surgical diathermy, lasers, and other energy sources used in surgery

**Wound management** – wound healing; factors influencing healing; basic surgical techniques, properties of suture materials: appropriate use of sutures.

**Assessment of head, chest and abdominal trauma and triage**- Assessment of a trauma victim, resuscitation; care at the site; triage care in the accident department; criteria for immediate surgery; immediate workup and logical referral criteria.

**Fluid and electrolyte balance / Acid – Base metabolism**- The body fluid compartments; metabolism of water and electrolytes; factors maintaining homeostasis; causes for and treatment of acidosis and alkalosis.

**Blood transfusion**- Blood grouping cross matching; blood component therapy; complications of blood transfusion; blood substitute; auto transfusions; cell savers.

**Surgical infections**- asepsis and antisepsis; microbiological principles; rational use of antibiotics; special infections like synergistic gangrene and diabetic foot infections. Hepatitis and AIDS

**Surgical nutrition**- nutritional assessment; metabolic response to stress; need for nutritional support; external nutrition; routes of access to GI tract; Parenteral nutrition; access to central veins for nutritional support.

**Principles of laparoscopy / GI endoscopy**- laparoscopic instrumentation; physiology of pneumoperitoneum; complications of laparoscopy; diagnostic and therapeutic applications. GI endoscopic instrumentation; Diagnostic and therapeutic applications of upper GI, Lower GI and ERCP studies.

**Principles of oncology**- cell kinetics; causation of tumours; principles of oncologic surgery, radiotherapy and chemotherapy; Para neoplastic syndromes; cancer pain management; palliative care

**Principles of burn management** – type of thermal injury; assessment of extent; immediate management; late management; skin cover; rehabilitation.

**Principles of fracture management**- fracture healing; principles of immobilization; complications; principles of internal fixation.

**Airway obstruction/ management**- anatomy of the airway; principles of keeping the airway patent; mouth to mouth resuscitation; oropharyngeal airway; endotracheal intubation; cricothyroidotomy; tracheostomy.



**Shock and pulmonary failure-** types of shock; diagnosis; resuscitation; pharmacologic support; ARDS and its causes; prevention; ventilatory support.

**Anaesthesia-** pharmacology of inhalational; intravenous and regional anaesthetics; muscle relaxants.

**Assessment of trauma:** Multiple injured patient / closed abdominal and chest injuries / penetrating injuries; fractures pelvis; urological injuries; vascular injuries; trauma scores.

**Acute abdomen-** Appendicitis / Peritonitis / Perforated viscus / Intestinal obstruction. Hernias- Various types of hernias, simple and complicated, their repair, prosthetic materials.

**Critical care-** Cardio respiratory failure- management of shock; including monitoring sepsis scores; pharmacological support.

**Pain control-** acute and chronic pain; cancer and non cancer pain; patient controlled analgesia. Breast disease- benign and malignant disease; diagnosis; investigation; screening for cancer; genetics of breast cancer.

**Thyroid disease-** solitary nodule; investigations; multinodular goiter, thyroiditis disease, cancer.

**Upper GI disease-** oesophageal and gastro-duodenal disorders.

**Hepato-biliary disease Pancreatic disease**

**Colo-rectal disease / Anal disease.**

**Soft -tissue neoplasms.**

**Endocrine disease.**

**Basics of GI endoscopy and Laparoscopy :**

- Principles of GI endoscopy
- Complications including infective considerations
- Diagnostic and therapeutic GI endoscopy including upper GI, lower GI and pancreato-biliary systems.
- Physiology of pneumoperitoneum
- Diagnostic Laparoscopy
- Laparoscopic therapeutic procedures

**Basics of Neurosurgery.**

- Head and neck trauma; acute management and rehabilitation
- Concept of brain death / medico- legal implications
- Peripheral nerve injuries
- Neoplasms of the brain and meninges
- Acute and chronic infections of the brain and meninges
- Hydrocephalus
- Spinal injuries
- Monitoring intracranial tension

**Basics of *Urology***

- Urological injuries
- Urothelial tumours / Chemotherapy
- Prostatic hypertrophy
- Hypospadias
- Pyelonephritis / perinephric abscess
- GU tuberculosis
- Scrotal disease
- Endourology
- Peritoneal dialysis /CAPD/ Haemodialysis
- Transplantation / harvesting kidney
- Urinary diversion
- Infertility / Vasectomy
- Pyeloplasty / hydronephrosis

**Basics of *Oncology***

- Imaging CT/ MRI/ CT Guided FNAB/C
- Breast, thyroid and GI malignancies
- Head and neck tumours
- Chemotherapy / Radiotherapy
- Post excision reconstruction

**Basics of *Plastic Surgery*.**

- Burns management
- Facial injuries
- Principles of tissue transfer
- Cleft lip and palate
- Congenital defects of hand
- Pressure sores
- Principles of microsurgery
- Hypospadias
- Details of skin flap
- Nerve repair
- Vascular repair
- Hand injuries / tendon injury

**Basics of *Cardio-thoracic surgery***

- Flail chest / thoracic trauma
- Bronchogenic carcinoma. Lobectomy

- Pneumonectomy
- Endocarditis prophylaxis
- Pulmonary function tests
- Control of major haemorrhage.
- Operations on the diaphragm.
- Coronary artery disease.
- Valvular heart disease.
- Lobectomies and pneumonectomies
- Oesophageal disease. Operations of thoracic aorta
- Mediastinal tumours.
- Basics of congenital heart disease.

#### **Basics of\_Vascular Surgery.**

- Vascular imaging
- AV malformations
- Exposure of major arteries and veins / vascular anastomosis
- Varicose veins
- Chronic venous insufficiency
- Vascular emergencies – trauma, embolism
- Peripheral vascular disease- Atherosclerosis. Arteritis
- Details of vascular prosthesis.

#### **Basics of\_Paediatric Surgery**

- Fluid and electrolyte management
- Preparation for surgery / postop care
- Hernias
- Spinal fusion defects.
- Ventral defects
- Undescended testes.
- Hypertrophic pyloric stenosis
- Hirshprung's disease.
- Diaphragmatic hernia.
- Tracheo oesophageal fistula
- Anorectal anomalies
- Necrotising enteritis

**Basics of *Gynaecological Surgery*.**

- Pelvic inflammatory disease.
- Ectopic pregnancy
- Ovarian Cysts.
- Caesarean Section
- Family planning - Tubectomy and Vasectomy and Recanalisation

**Practical aspects of the subject including case record writing, various diagnostic tests and basic knowledge of functioning of clinical instruments related to the subject.**

## **6. ORTHOPEDICS**

### **A) Basic sciences related to Orthopedics:**

- Embryology, developmental applied Anatomy of Bones, Joints, Ligaments, Muscle and Nerves.
- Anatomy of Growth plate, Ossification of Bones and vascular anatomy of Bones
- The course and distribution of the major arteries, veins and nerves of upper and lower limbs
- The structure and functions of the vertebral column, intervertebral disc, spinal cord, meninges and related blood supply
- The structure and functions of diaphragm, abdominal wall, thorax, pelvis and their contents in relation to trauma and diseases
- The normal structure, function and growth changes in bone, cartilage, skeletal muscles and joints
- Biomechanics of human locomotion
- Neuro Muscular Junction and physiology of Muscle contraction
- Calcium and Phosphorous Metabolism
- Biochemical and Endocrine changes in ossification and mineral metabolism
- Pharmacology of Analgesics, NSAIDS, Antibiotics, anti Tubercular drugs
- Chemotherapy and Radiotherapy Basics in management of Bone Tumours
- Drugs used in treatment of Rheumatoid Arthritis, Gout and Spondylo- Arthropathies
- Microbial infections of the Bone, Joints and Soft tissues and their varied presentations
- Patho physiology of Trauma
- Patho physiology of Pain
- Pathology of Bone Tumours
- Principles of Hemostasis and common disorders of Bleeding
- Blood Groups, Transfusion of whole Blood and Blood products
- Fluid and Electrolyte balance- Normal and Various pathological conditions causing Imbalance
- Acid Base Balance and Oxygen and Carbon-dioxide Transport

### **B) General Orthopaedics:**

- History of Orthopaedics
- Metabolic and Endocrine Disorders of the Bone
- Infections of the Bone – Pyogenic, Tubercular and Mycotic

- Arthritis – Tubercular , Non-tubercular
- Congenital Deformities
- Developmental disorders
- Diseases of Joints - Degenerative Arthritis, Crystal deposition disorders
- Rheumatological Disorders and Spondyloarthropathies
- Orthopaedic Neurology - Poliomyelitis, Cerebral palsy
- Tumours of Bone - including Secondaries of bone
- Diseases of Muscles
- Unclassified Diseases of Bone
- Peripheral Nerve Injuries
- Peripheral vascular diseases - Bleeding and Clotting disorders, Haemoglobinopathies and their Orthopaedic manifestations

#### **Regional Orthopaedic Condition of Adults and Children**

- The Spine
- The Pectoral Girdle
- The Shoulder
- The Elbow
- The Hand
- The Wrist
- The Pelvis
- The Hip
- The Knee
- The Foot and Ankle

#### **C) Trauma:**

##### **Fractures**

- Disaster Management
- Advance Trauma Life Support
- Definitions, types, grades, patterns and classification of various fractures
- Complications of Fractures
- Pathology of Fracture and Fracture healing
- Clinical & Radiological features of fractures & dislocations
- General principles of Fracture treatment
- Fracture of upper extremity & shoulder girdle
- Fractures of lower extremity& pelvic girdle
- Fractures of spine and spinal cord injuries.

- Fractures in children
- Mal united fractures, Delayed union & non union of fractures

#### **Traumatic Disorders of joints.**

- Subluxation & Dislocation (Acute dislocations, Old unreduced dislocations, recurrent dislocations.)
- Shoulder & Elbow injuries.
- Wrist and Hand injuries
- Fractures of the Hip region
- Injuries around the Knee
- Injuries around the Ankle
- Sports and related injuries
- Arthrodesis of lower extremity (Hip, Knee & Ankle) upper extremity and Spine.
- Bone grafts & Bone substitutes (Bone banking)
- Biomechanics of Joints and Joint Replacement
- Arthroplasty (Hip, Knee, Ankle, Shoulder, Elbow, Wrist)
- General principles of Arthroscopy.
- Arthroscopy of knee , ankle , shoulder , elbow , wrist
- Amputations and disarticulations
- Skin grafting & flaps
- Limb Length inequality & its management
- Microsurgical techniques in Orthopaedics
- AIDS related Orthopaedic conditions
- Theatre techniques and sterilization
- Physiotherapy and its modalities
- Orthotics and prosthetics
- Rehabilitation
- Disability Rating And Evaluation

**Practical aspects of the subject including case record writing, various diagnostic tests and basic knowledge of functioning of clinical instruments related to the subject.**

## 7. GENERAL PATHOLOGY

General Pathology including Immunopathology.

Systemic Pathology.

Hematology.

Blood Banking including Transfusion medicine.

Cytopathology.

Laboratory organization including Quality Control.

Basic Microbiology and Clinical Biochemistry.

General

Principles of sample collection for Hematology and Clinical Pathology

Processing of Histopathology and cytology specimens.

Complete urine analysis and stool examination.

Pregnancy tests, semen analysis.

Microbiological and biochemical tests

Waste disposal and universal precautions.

Cytology

1. Fine needle aspiration cytology – Staining and Interpretation.

2. Cytology of body fluids: Processing and Interpretation.

Histopathology

1. Histopathologic techniques including section cutting.

2. Hematoxylin and Eosin stain and special stains which include PAS stain, Alcian blue stain, Reticulin stain, Masson's Trichrome and Perl's stain.

3. Principles of immunohistochemistry and immunofluorescence.

Hematology

1. Anticoagulants.

2. Preparation of Leishman's stain and reagents for blood counts.

3. Hands on experience in different methods of Haemoglobin estimation, RBC, WBC Platelet and Reticulocyte counts, AEC, PCV, ESR and calculation of absolute indices and Coagulation tests.

4. Preparation and interpretation of Peripheral smear and Bone marrow smears.

5. Hemolytic workup including sickle cell preparation, Hb F etc.

6. Cytochemistry : Peroxidase / Sudan black B, PAS, LAP, NSE and Perl's stain

7. Quality control and use of automated cell counters.

8. Cleaning of Glass ware.

Blood Bank

1. Blood groups and Typing.

2. Cross Matching.

3. Coomb's test.

4. Donor screening and blood collection.

5. Testing for STS, HIV, Hepatitis B & C.

6. Rh antibody titration.

7. Cold agglutinin titre estimation.

8. Quality control



### Microbiology

1. Experience in preparation and interpretation of :
  - (a) Grams Stain.
  - (b) Z.N. stain.
  - (c) Hanging drop.
  - (d) KoH and Lactophenol preparations for fungi.
2. Sterilization techniques, culture methods, identification and reporting –
3. Hands on experience and interpretation of serological tests like Widal, V.D.R.L., HIV, HBV, CRP, RF and ASO.

### Clinical Biochemistry

Basic Biochemistry applied to biochemical investigations :  
Handling of Photo colorimeter, Spectrophotometer, pH meter, Flame photometer, Semi autoanalyser, Autoanalyser and Electrophoresis apparatus.  
Carrying out biochemical investigations like Blood Sugar, Urea, Creatinine, Proteins, Bilirubin, SGOT, SGPT, Alkaline Phosphatase etc.

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