NATIONAL POSTGRADUATE MEDICAL COLLEGE OF NIGERIA

RESIDENCY TRAINING CURRICULUM

FACULTY OF ANAESTHESIA

APPROVED BY THE SENATE ON 3RD JUNE, 2021

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Faculty of Anaesthesia

NATIONAL POSTGRADUATE MEDICAL COLLEGE OF NIGERIA

RESIDENCY TRAINING PROGRAMME IN ANAESTHESIA TOWARDS

THE FELLOWSHIP OF THE MEDICAL COLLEGE IN ANAESTHESIA (FMCA)

Curriculum for Residency Training in Anaesthesia

REVISED 2021

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INTRODUCTION AND PROGRAMME PHILOSOPHY

The National Postgraduate Medical College of Nigeria was established by the Federal Government by Decree 67 of September, 1979 and was given, among others "the responsibility for the conduct of professional postgraduate examination of candidates in the various specialized branches of Medicine, Surgery, Paediatrics, Obstetrics &Gynaecology, Family Dentistry, Dental Surgery, Anaesthesia, Pathology, Family Medicine, Public Health, Ophthalmology, Radiology, Psychiatry and Otorhinolaryngology, Head and Neck Surgey, Orthopaedics and Emergency Medicine.

Anaesthesia is a medical specialty responsible for the care of patients before, during and after surgical operations, labour and delivery, and certain interventional procedures. Physician Anaesthetists have unique skills and knowledge to support and in appropriate circumstances lead, the provision of resuscitation, critical care medicine, palliative care and pain medicine.

The Faculty of Anaesthesia of the National Postgraduate Medical College of Nigeria seeks to train specialists in anaesthesia who are able to exercise good judgement based on scientific principles, not only to enable him/her function effectively in the Nigerian environment, but also to enable him or her compare favorably with his or her peers anywhere in the world.

The residency training for the Fellowship of the Medical College in Anaesthesia (FMCA) should also prepare him/her adequately for the management and professional leadership roles that will be expected of him/her. The trainee should be exposed to routine processes of teaching/learning and self instruction including problem–solving (research) and health services management in preparation for these roles.

The purpose of this curriculum (for residents and their teachers) is to highlight the training programme and regulations towards award of the Fellowship of the National Postgraduate Medical College and the areas relevant to the Primary, Part I, MD and Part II FMCA Examinations.

THE RESIDENCY TRAINING PROGRAMME

The Residency Training Programme in Anaesthesia is conducted in centres accredited by the National Postgraduate Medical College of Nigeria on the recommendation of the Faculty Board of Anaesthesia. The criteria for accreditation are spelt out in a separate companion to this document. The list of accredited training centres (Appendix I) is published by the College from time to time and it is available on the College website (www.npmcn.edu.ng). These centres are re-visited at periodic intervals (5 years or 2 years for full and partial accreditation respectively) to ensure that training facilities and the training programmes are maintained at an acceptable level. Accredited centres are responsible for providing the resources (personnel, finances, materials) as well as the management/organization to train the resident anaesthetists sufficiently to enable them to function as Consultants at the end of their training. The Head of Anaesthesia Department at each training centre is expected to provide annual reports on the performance of each resident as well as the overall programme on prescribed annual report (evaluation) forms. It is therefore expected that the training department should constantly plan, implement, coordinate and evaluate the trainees' learning activities so as to ensure that the required standards of performance are achieved.
The educational process ensures flexibility allowing for removal of obsolete ideas and inclusion of new ones

Chapter 1

THE TRAINING PROGRAMME FOR THE FELLOWSHIP IN ANAESTHESIA

INTRODUCTION

As the philosophy of the Fellowship Programme in Anaesthesia states that emphasis should be on the quality of training received by the candidate before admission to the Fellowship Examination, the training must be undertaken in accredited institutions.

There will be 2 sittings of all parts of the examination in each academic year, the March/April/May and September/October/November Fellowship examinations.

1.1 ADMISSION REQUIREMENTS

Candidates who qualify for entry into the programme must:

(i) BeMBBS holders fully registered by the Medical and Dental Council of Nigeria. A candidate who meets the prerequisite should take the Basic Sciences Examination prior to entering a training institution.

Others:

(ii) Must have the National Youth Service Corps discharge or exemption certificate.

(iii) A pass in the Primary Examination of the Faculty.Candidates who possess a pass in the Primary of Postgraduate Medical College(s) that has (have) reciprocity with the NPMCN are also eligible to be admitted into the residency training programme of the Faculty.

(iv) A candidate who has the Diploma in Anaesthesia certificate following a one-year course in an institution accredited for the Residency Programme will be credited with the first year of the 2-year junior residency programme.

1.2 REGISTRATION OF RESIDENTS

In compliance with College Bye-Laws, all residents undergoing the FMCA residency training must be registered simultaneously with their respective training centres and with the College. The registration of each Resident with the College must be processed through and supported by the training centre. Registration with the College confers on the resident the status of an Associate Fellow of the College. Application forms for registration as an Associate Fellow are available on the College website to be filled and submitted online with attached relevant documents. Candidates not registered as Associate Fellows of the College will not be allowed to sit for the Part I or Part II Fellowship Examination of the College.

1.3 GENERAL EDUCATIONAL OBJECTIVES

By the end of the training in the residency programme, each resident in Anaesthesia should be able to perform the duties expected of a Consultant Anaesthetist:

(a) Perform with skill, the art of anaesthesia, pain relief, Resuscitation and ICU within any community in Nigeria and elsewhere.

(b) Organise and operate anaesthetic and ICU services in any community whether urban or rural.

(c) Practice with high ethical and administrative integrity with full sense of responsibility for his or her duties; the ability to communicate with those who seek his or her advice and with deep concern and respect for his/her patients and colleagues.

(d) Plan, initiate and execute research projects in different aspects of anaesthesia, analgesia and ICU and present his/her findings in an intelligent manner to the appropriate audience.

(e) Adequately impart knowledge and skill to other members of the profession.

1.4 LENGTH OF TRAINING

Eligible candidates are admitted to a full-time programme of residency training in Anaesthesia for a minimum period of five years. Candidates are expected to have passed the Primary Fellowship Examination before admission into the residency training programme.

1.5 After satisfactory completion of the initial two years period of residency training and having passed the Primary Fellowship Examination, candidates shall be eligible to sit the Part I Fellowship Examination following a 3 month mandatory rotation to Medicine – with emphasis on Cardiology, Respiratory, Endocrinology, Neurology, Nephrology and 2 weeks in Paediatrics (children's emergency unit and neonatal intensive care).

1.6 Before sitting the Part I examination, it is mandatory that the candidate attends relevant Faculty update courses particularly on Principles and Practice of Anaesthesia and Instrumentation.

1.7 Upon passing the Part I Fellowship Examination, candidates are eligible for admission to a senior residency training period of 3 years during which they are expected to exercise increasing degrees of personal responsibility for patient care (under supervision), each candidate is also expected to carry out a research project leading to the writing of a dissertation ; the topic should be of an important subject matter which is of interest to the practice of anaesthesia, in part fulfillment of the requirement for the MD and/or Part II Fellowship Examination.

1.8 During the senior residency period, the candidate must attend the following courses

1) Research Methodology Course
2) Health Resources Management Course
3) Ethics in Clinical Practice and
4) MD courses (optional):
i) Medical Education
ii) Advanced Research Methodology
iii) Advanced Health Resources Management
iv) Assessment and Examination Methods

1.9 Upon completing the senior residency programme, candidates are eligible to sit the Part II Final FMCA Examination. When they pass this examination, they are eligible for appointment as Consultant Anaesthetists. However, those that choose to do the MD will present their thesis/dissertation for defense at least 6 months before the final Part II Examination.

1.10.GOALS

Upon completion of training a resident is expected to be a competent generalist Physician Anaesthetist, capable of assuming a consultant's role in the specialty. The resident must acquire a working knowledge of the theoretical basis of the specialty, including its foundations in basic medical sciences and research. Residents must demonstrate the skills and attitudes to work efficiently within multidisciplinary and inter-professional teams.

The Physician Anaesthetist will demonstrate the necessary knowledge of: patient assessment, surgery, obstetrics, medical and surgical procedures, resuscitation, critical care medicine, acute and chronic pain, and the impact of medical and surgical conditions on anaesthetic care to provide consultation to physicians and patients. He/she must be clinically competent in the provision of perioperative, peripartum and peri-procedural anaesthetic care across all age groups and all patient disease states. He/she must respond in a timely fashion, appropriate to the clinical circumstance.

Residents must demonstrate the requisite knowledge, skills, and attitudes for effective patient-centred care and service to a diverse population. In all aspects of specialist practice, the graduate must be able to address issues of gender, sexual orientation, age, culture, ethnicity and ethics in a professional manner. Residents must acquire the skills of self-assessment required for lifelong learning.

Chapter 2

CURRICULUM FOR THE PRIMARY EXAMINATIONS

The changing pattern in the training of the Specialist Anaesthetist makes it impossible to produce any rigid curriculum. However in keeping with present universally accepted requirements, the following is intended to serve only as a guideline. The curriculum for the Primary consists of Basic Sciences in relation to Anaesthesia. Preparation for the Primary examination is self-centred learning and a Faculty update course in basic sciences. Eligibility for the Primary examination is possession of the Bachelor of Medicine and Bachelor of Surgery degree (MB;BS) or its equivalent in a recognized University, full registration with the Medical and Dental Council of Nigeria, completion of the one-year National Youth Service Scheme or exemption from the scheme. The Basic Sciences curriculum shall include:

2.1.1. ANE 901 Physiology for Anaesthetists (9 credit units)

2.1.2. ANE 902 PharmacologyforAnaesthetists(9 credit units)

2.1.3. ANE 903 Physics in Anaesthesia, with special emphasis upon those general principles essential for the proper understanding of anaesthesia and anaestheticequipment (2 credit units)

2.1.4. ANE 904 Biochemistry and Clinical Chemistryin relation to Anaesthesia(2 credit units)

2.1.5. ANE 905 Principles of Pathology Applicable to Anaesthesia(2 credit units)

2.1.6. ANE 906Applied Anatomy for Anaesthetists (2 credit units)

2.1.7. ANE 907 Self-centredLearninginAnaesthesia(3 credit units)

2.1.8. ANE 908 Faculty Update Course in Basic Sciences in Relation to Anaesthesia(3 credit units)

Total Credit Units 32

LEVELS OF TEST ITEMS (MULTIPLE CHOICE QUESTIONS -SINGLE BEST OPTION) BASED ON BLOOM'S TAXONOMY OF LEARNING)

LEVEL	**DEFINITIONEXPLANATION**
I Remembering	Recalling information. The answer is in the text; explicit, fact fully and clearly expressed
II Understand	Explain ideas or concepts- comprehends, classify, describe, discuss, explain, identify, locate, recognize, report, select, translate
III Apply	Use information in new situations- applies, computes, demonstrates. Application of principles
IV: Analysis/Inference	The answer can be inferred from the text. Involves examining in detail, analyzing motives or causes and making inferences. Compares, contrasts

2.1.1.ANE 901. PHYSIOLOGY FOR ANAESTHETISTS: 9 CREDIT UNITS

	TITLE	**CREDIT UNITS**	**NO OF MCQs 50**	**LEVEL**
2.1.1.1	**Review of General Physiological Principles** The Cell, Structure, Functional System of the Cell, Reproduction and Genetics, Body fluids and membrane physiology i.e. transport across membranes. **Water and Electrolyte Balance,** Regulation of water balance and composition of body fluids, Causes and effects of oedema and dehydration, Effects of derangements of the alimentary canal on body fluids, Potassium metabolism, Sodium and chloride metabolism, Calcium metabolism and trace elements, Water and sodium balance, Perioperative fluid management **Acid Base Balance and Imbalance:** pH of body fluids and buffer systems of the body,Respiratory acidosis and alkalosis**,** Metabolic acidosis and alkalosis,Quantification of acid base disturbance, clinical syndromes in acid base imbalance.	1	5	I 40% II 60%
2.1.1.2.	**Central Nervous System:** Structure and function of nervous tissue**,** Neuro transmission and Neurotransmitters**,** Membrane physiology and functions in anaesthesia,Brain including functional divisions of cortex, medulla, limbic system, brain stem and cerebellum, Intracranial pressure**,** Spinal cord and reflexes**,** Ascending and Descending Pathways,Paintransmission,Synapses,	1.5	9	I 40% II 60%

	Special senses and cranial nerves, Maintenance of posture and balance **Autonomic Nervous System. Sympathetic Nervous System** **Parasympathetic Nervous System, Neuromuscular System (**Skeletal Muscles andNeuromuscular Junction) **The Senses – Eye, Ear, Nose etc.**			
2.1.1.3.	**Cardiovascular System:** Structure and properties of the heart muscles, Origin and spread of cardiac impulse, cardiac cycle, The electrocardiogram and its interpretation, Cardiac output and factors maintaining it/Estimation of cardiac output in man, Heart rate and arrhythmias, Systemic circulation including arterial blood pressure, its measurement and factors maintaining it: (Hypertension, Hypotension, Shock (various types), Disturbance of venous circulation, Anaemia and the Heart , acute respiratory distress syndrome, Microcirculation, Venous pressures including central venous pressure measurement, Tissue perfusion in health and in disease, Special Circulations (Coronary, Cerebral, Pulmonary, Hepatic and Renal, Foetal circulation)	1.5	9	I 40% II 60%
2.1.1.4.	**The Blood and Blood Forming Organs:** Blood, lymph and cerebrospinal fluid, Homeostasis**,** Erythropoesis and its regulation**,** Blood elements**,** Anaemia and its classification,Coagulation and coagulation defects**,** Fibrinolysis (activators and inhibitors),Metabolism of iron and haemoglobin, Plasma proteins,Reticulo-endothelial system, Immune reactions**,** The spleen	1	4	I 40% II 60%
2.1.1.5.	**The Respiratory System:** The control of respiration**,** Mechanics of ventilation (resistance to flow, compliance),Ventilation/Perfusion relationship, Hypoxic VasocontrictionReflex,Oxygentransport,Carbon dioxide transport,Hypoxia/hypercarbia**,** O_2 therapy, toxicity, Acclimatization in low PO_2, environment, Chronic mountain sickness, decompression illness,Cyanosis**,** O_2 therapy and humidification, normal and abnormal breathing patterns,Pulmonary function tests**,** Sleep disorders	1	9	I 40% II 60%
2.1.1.6.	**Renal System:** The kidney and homeostasis,Renal function tests,Physiology of Urine formation**,** Physiology of Micturition**,** Kidney Diseases (acute renal failure, chronic renal failure, renal vascular disease/injury), Uraemia, Renal regulation of acid base	1	4	I 40% II 60%
2.1.1.7	**Digestive System:** Secretion of digestive juices,Neuromechanism of the alimentary canal (vomiting, peristalsis and defecation)**,** Digestion and absorption of nutrients**,** Swallowing **The Liver:** Normal hepatic / Biliary functions, Changes in hepatic/ biliary structure and function indisease,Liver function tests and interpretation **Metabolism:** Chemical transformation and energy release**,** Carbohydrate, Fat and Protein metabolism**.** **Nutrition:** Principles of dietetics, dietary balances, regulation of feeding, starvation/obesity,Vitamins/minerals**,** Drug metabolism in abnormal nutritional states**.**	1	5	I 40% II 60%
2.1.1.8	**Endocrine Glands & Reproduction, Foetal& Neonatal**	1	5	I 40%

	Physiology: General considerations**,** Physiology of Pregnancy**,** Endocrine organs, dysfunctions and therapy (Thyroid diseases, Diabetes, Obesity, Addison's disease, Cushing's syndrome). Foetal circulation. **Regulation of Body Temperature** **Sports Physiology:** Muscle exercise**,** Endurance**,** Nutrient and drug metabolism,Effect of training on Cardiovascular, Respiratory and Central nervous systems.			II 60%

2.1.2ANE 902. PHARMACOLOGY FOR ANAESTHETISTS: 9 CREDIT UNITS

	TITLE	**CREDIT UNITS**	**NO OF MCQs 50**	**LEVEL**
2.1.2.1	**General Principles:** Pharmacodynamics/Pharmacokinetics, Mechanism of action of drugs, Concept of a receptor, Drug-receptor combination, Kinetics of drug-receptors, Drug interactions, Transfer of drugs across membranes, Routes of administration, Factors affecting drug dosage, Binding of drugs, Drug metabolism, Drug excretion, Drug toxicity **Development, Evaluation and Control of Drugs:** Sources and discovery of new drugs**,** Development and evaluation of new drugs**,** Ethics and clinical trials**,** Drug regulations	1	5	I 40% II 60%
2.1.2.2	**Drugs Acting on the Central Nervous System:** CNS depressants/stimulants,Sedatives, hypnotics and Anxiolytics**,** Neuroleptics, Phenothiazines, Benzodiazepines and Antagonists**,** Antiepileptics,Drugs used in substance dependence **Parasympathomimetic and Cholinergic Drugs:** Acetylcholine and choline esters,Anticholinesterases**,** Anticholinergic drugs; Belladonna Alkaloids**,** Other anticholinergic drugs. **Sympathomimetics and Adrenergic Blocking Drugs:** Adrenergic drugs**,** Adrenergic blocking drugs (alpha and Beta blockers).	1.5	10	I 40% II 60%
2.1.2.3	**General Anaesthetics:** Mode of action of anaesthetic**,** Inhalational anaestheticagents,Intravenousanaesthetic agents**,** Medical gases – oxygen, nitrous oxide, medical air **Local Anaesthetics:** Pharmacology, Chemistry and Metabolism. Esters and Amides. Local anaesthetic toxicity **Neuro-Muscular Blocking Agents:** Pharmacology, Chemistry and Metabolism,Pharmacodynamics of Muscle Relaxants. Depolarizing and Non-Depolarizing neuromuscular blockade, Drugs used for Antagonism of neuromuscular blockade.	2	10	I 40% II 60%

	Systemic Analgesics: Opioids including endogenous opioids and their antagonists**,** Endorphins and encephalins**,** Non-opioid analgesics**,** Non-steroidal anti-inflammatory drugs			
2.1.2.4	**Drugs Acting on the Cardiovascular System:** Cardiac glycosides and positive inotropic drugs,Antiarrhythmic drugs**,** Anti-hypertensive drugs**,** Vasodilators Vasopressors, Inotropic depressors-β-blockers, Nitrates and calcium – channel blockers, Anticoagulants and protamine, Antiplatelet drugs, aspirin, Fibrinolytic drugs, Antifibrinolytic drugs and haemostasis, Lipid lowering drugs, Local sclerosants. **Drugs Affecting Bronchial Calibre:** Broncho-constrictors**,** Broncho-dilators**,** Mucolytic agents**,** Corticosteroids**,** Prophylaxis of asthma, respiratory stimulants, antitussive, Nasal decongestants **Drugs Acting on the Urinary System:** Diuretics**,** Drug reducing the active reabsorption of sodium in the renal tubules, Aldosterone Antagonists**,** Drugs that alter Urinary pH.	1.5	10	I 40% II 60%
2.1.2.5	**Uterine stimulants and Tocolytic Agents** **Chemical Transmitters** **Nutrition and Blood:** Drugs used in the management of anaemia**,** Fluids and Electrolytes,Parental and Enteral Nutrition**,** Minerals**,** Vitamins, Trace Elements,Metabolic disorders	1	4	I 40% II 60%

2.1.2.6	**Pharmacology of the Endocrine System:** Pituitary **(**Anterior and Posterior pituitary hormones), Thyroid and anti-thyroid drugs**,** Parathyroid hormone and vitamin D**,** Insulin and the oral hypoglycaemic agents**,** Corticosteroids**,** Drugs affecting bone metabolism	1	6	I 40% II 60%
2.1.2.7	**Antimicrobial Agents:** General considerations**,** Sulphonamides**,** Penicillins, Aminoglycosides, Cephalosporines, Carbapenems, β-lactams, Fungicides, Antihelmintics, Antiretrovirals, Others – antiviral, Antiprotozoal drugs, Anti-fungal drugs in Intensive Care Unit. **Chemotherapy for Neoplastic Diseases:** Cytotoxic Drugs**,** Hormones**,** Radioactive isotopes**,** Drugs affecting immune response	1	5	I 40% II 60%

2.1.3. ANE 903 PHYSICS IN ANAESTHESIA. 2 CREDIT UNITS

	TITLE	**CREDIT UNITS**	**NO OF MCQs 30**	**LEVEL**
2.1.3.1	**General Principles:** Physics necessary for the understanding of respiration and circulation, uptake, and distribution of anaesthetic agents, movement of water and solutes across membranes e.g. The Gas Laws and their Clinical Applications, Pressure in liquids and gases. Volume and flow measurement, Temperature, Heat capacity and Latent heat, Humidity, Electricity, Solubility, Osmosis, Fluid flows (Laminar and Turbulent & Clinical applications), fires and electrical hazards. **SI units of measurements**	2	30	I 40% II 60%

2.1.4. ANE 904. BIOCHEMISTRY AND CLINICAL CHEMISTRY IN RELATION TO ANAESTHESIA. CREDIT UNITS 2

	TITLE	CREDIT UNITS	NO OF MCQs 20	LEVEL
2.1.4.1	**Biochemistry:** General introduction and Review of Basic Biochemistry**:** Carbohydrate metabolic pathways,Lipid metabolic pathways,Protein and nucleic acid metabolic Pathways**,** Metabolic interrelationships of lipids, carbohydrates and proteins**,** Metabolism of steroids**,** Enzymes in clinical medicine**,** Acid-base chemistry, Electrolytes,Detoxication; anti-metabolites in Medicines **Clinical Chemistry:** The principles of selection, application and interpretation of chemical laboratory investigations, Disturbances of: Acid base balance, Fluid and electrolyte balance, Renal function, Hepatic function, Metabolism of carbohydrate, fat and protein **Enzymes:** Digestive enzymes (serum amylase, lipase and other serum enzymes),Transaminases**,** Lipases; pancreatic function and diseases**,** Enzymes of carbohydrate metabolism**,** Phosphatases; acid and alkaline**,** Enzymes and drug action**,** Significance of laboratory tests **The Renal Function:** Characteristics of normal urine; Constituents and significance of values**,** Renal insufficiency; Biochemical manifestations**,** Non-protein nitrogenous constituents of urine**,** Renal function tests: **Gastrointestinal tract/Secretions:** Gastric secretion; measurement of gastric acidity, Pancreatic secretions. **Radioisotopes in Medicine:** General Principles and applications	1 unit	10	I 40% II 60%
2.1.4.2	**Biochemistry and Genetics in relation to Medicine:** Rudiments of Biochemical genetics; general principles**,** Metabolism of haemoglobin and porphyrins,Sickle cell anaemia; Population Biology,Other abnormal haemoglobins,Coagulopathies: Haemophilia, Other haemorrhagic diseases and conditions, and related factors **Mineral Metabolism:** Metabolism of iron; folic acid; vitamin B12, The anaemias; iron deficiency (abnormal iron metabolism), Calcium and inorganic phosphate metabolism, Bone minerals; bone formation. Abnormal serum calcium and abnormal urine calcium,Vitamin D (Rickets, Osteoporosis), Phosphates. Magnesium metabolism: absorption and excretion; clinical disturbances in magnesium metabolism, Sulphur metabolism, Iodine metabolism; absorption; secretion; abnormal iodine metabolism, Trace elements, e.g. copper, cobalt, fluorine, selenium, zinc, Industrial and Occupational Health.	1	10	I 40% II 60%

2.1.5. ANE 905. BASIC PATHOLOGY APPLICABLE TO ANAESTHESIA. CREDIT UNITS 2

	TITLE	CREDIT UNITS	NO OF MCQs 20	LEVEL
2.1.5.1	**Medical Microbiology:** Routine diagnostic methods for identification of bacteria, parasites and viruses of medical importance, including serological methods, in biological fluids, Sensitivity tests for treatment and chemotherapeutic control,Principles of sterilization and disinfection,Principles of immunology and allergy as related to anaesthesia,Common parasitic and fungal diseases in the tropics. **Haematology:** Anaemias, leukaemias, cyto-proliferative disorders, Haemorrhagic and thromboembolic diseases, Haemoglobinopathes, G6PD deficiency etc., Blood transfusion medicine	1	10	I 40% II 60%
2.1.5.2	**Chemical Pathology:** Basic principle of fluid and electrolyte balance, Blood chemistry, Hepatic function tests, Renal function tests, principles and practice of urinalysis. **Morbid Anatomy:** General principle of pathology to include inflammation, coagulation, thrombosis, embolism, growth and its disorders, pigments and pigmentation, ionizing radiation, chemical poisons and medical genetics. Regional pathology to include common diseases of the cardiovascular, respiratory, alimentary, endocrine, musculoskeletal, central nervous system and sepsis.	1	10	I 40% II 60%

2.1.6. ANE 906. APPLIED ANATOMY FOR ANAESTHETISTS CREDIT UNITS 2

	TITLE	CREDIT UNITS	NO OF MCQs 30	LEVEL
2.1.6.1	**The Anatomy of the Head and Neck:**The structure of the scalp,Development of the cranium and the central nervous system,The Neuro-cranium and its contents and surface anatomy, The meninges, the venous sinuses and the middle meningeal artery,Nasal Cavity and Paranasal sinuses, The anatomy of the circulation of cerebrospinal fluid, The Anatomy of the anterior and lateral regions of the neck, The Larynx, The Pharynx, The development and malformation of the thyroid, thymus, parathyroids, tonsils and the branchial clefts and arches, The development and congenital malformations of the face, nose and mouth, The gross anatomy of the mouth, buccal cavity, tonsillar region and pharynx, The viscero-cranium, Muscles of facial expression and nerve supply, Temporomandibular joint Oesophagus, Diaphragm, Cranial nerves, Tongue **Spinal Canal and its Contents:** Spinal cord**,** Nerves**,** Brachial Plexus**,** Lumbo-Sacral Plexus**,** Epidural Space, Subarachnoid space. **Neuro-Anatomy:** Brain**,** Medulla**,** Autonomic Nervous Systems.	1	15	I 40% II 60%
2.1.6.2	**Thorax:** The anatomy of the thorax with particular consideration of the lungs, trachea, bronchopulmonary segments, pleura, heart, pericardium and blood supply. The thoracic wall and innervations, Mediasternum, Thymus, Thoracic inlet, 1st rib and the great vessels.	1	15	I 40% II 60%

	Abdomen: The anatomy of the abdominal wall including the umbilical, the posterolateral and the inguino-abdominal regions and innervations. The entire abdominal viscera, including blood supply, venous drainage, innervations as well as lymphatic drainage. **Pelvis and Perineum:** The development, gross anatomy, macroscopical structure of the pelvic visceral and the perineum and their innervations, Malformations of the external genitalia. **The Extremities and Joints Osteology:** The gross anatomy and cutaneous innervations of the upper and lower extremities, The development, classification and description of joints of the body. **The Eye:** Development, gross structure, muscles of the eye, movement, innervation, blood supply, venous drainage as related to anaesthesia, Intraocular pressure **The Ear**.			

2.1.7. ANE 907. SELF-CENTRED STUDY. 3 CREDIT UNITS

2.1.8. ANE 908. UPDATE COURSE IN BASIC SCIENCES IN RELATION TO ANAESTHESIA: 3 CREDIT UNITS.

2.2. THE PRIMARY EXAMINATION

Candidates are expected to satisfy the Examiners in the following Basic Science subjects:

a) Physiology
b) Pharmacology
c) Anatomy
d) Biochemistry
e) Physics
f) Pathology as related to Anaesthesia

Course Objectives

The Primary Examination in basic sciences seeks to test the candidate's understandingof the scientific basis and the principles of Anaesthesia. These include but not limited to:

Anatomy and physiology of the airway
Anatomy and physiology of the body systems – nervous system, respiratory and cardiovascular systems; the neuromuscular junction, the renal & gastrointestinal systems.
The various anatomical landmarks relevant to the practice of anaesthesia
Pharmacology relevant to anaesthetists
Physics relevant to anaesthetists
Clinical chemistry & pathology in different disease conditions.

2.2.1.Format of the Examination

The examination comprises of one paper of Multiple Choice Questions/Single Best Option lasting 3 hours.

The paper has 200 multiple choice questions (MCQ), each with 4 statements with one best answer.

For each correct response a mark is given. For each wrong answer or no response is indicated, the marks will not be affected either way. The scope covers all areas of relevant basic sciences as follows:

(a) Physiology 50 questions
(b) Pharmacology 50 questions
(c) Anatomy 30 questions
(d) Physics 30 questions
(e) Biochemistry 20 questions
(f) Pathology 20 questions

2.2.2. **Pass mark for the examination**: The principle of standard setting using the Modified Angoff method will be used to determine pass mark for the MCQ.

2.2.3. Examination Results

In order to pass the examination, the candidate must obtain overall at least the pass mark as determined by court/panel of judges. Candidates are advised to read widely from text books recommended and to attend a minimum of one revision course before taking the examination. Practice at answering multiple choice questions is also recommended.

2.2.4. Exemption from Primary Examinations

Candidates who have been successful in the Primary Examination in Anaesthesia of sister colleges with reciprocity, may on request be exempted from the Primary Examination in Anaesthesia of the National Postgraduate Medical College.

Chapter 3

JUNIOR RESIDENCY TRAINING

3.0GENERAL EDUCATION OBJECTIVES

The main objective of the Junior Residency Programme is to equip each resident to be a safe practitioner, able to handle most elective and emergency cases with confidence and promptness. Thus, the junior residency training will cover the basic aspects of the practice of anaesthesia, including anaesthetic aspects of the management of acute medical and surgical emergencies.

3.1Format of Training

The Junior Residency Programme which lasts a minimum of twenty-four months has the relevant subjects as follows:
This provides a comprehensive introduction to the principles and practice of the delivery of safe and effective anaesthetic care to patients for trainees new to the specialty. The following units of training must be completed satisfactorily:

1. Preoperative assessment: History, Clinical Examination, Investigations, Specific pre-anaesthetic evaluation and Premedication
2. Intraoperative management: conduct of anaesthesia, induction and maintenance of anaesthesia and emergence from anaesthesia.
3. Immediate post-operative care: recognition and treatment of postoperative complications related to anaesthesia
4. Post-operative and recovery room care
5. Methods of postoperative pain relief/management of pain in general
6. Anaesthesia for surgery including
    (i) General Surgery
    (ii) Orthopaedics
    (iii) Trauma
    (iv) Burns and Reconstructive
    (v) Urology
    (vi) Maxillo-facial surgery
    (vii) Paediatric Surgery
    (viii) Ophthalmology
    (ix) Otorhinolaryngology
    (x) Neurosurgery
    (xi) Cardiothoracic surgery
    (xii) Anaesthesia for ECT, Radiotherapy, diagnostic radiology, interventional radiology.
    (xiii) Day case surgery – organization of ambulatory services
    (xiv) Obstetrics; Analgesia and Anaesthesia
    (xv) Anaesthesia for Gynaecological Surgery
    (xvi) Endoscopic surgery

7. Commonly used Regional Anaesthetic techniques

(i) Spinal
(ii) Epidural, Caudal, CSE
(iii) Nerve blocks, penile block, plexus blocks
(iv) Intravenous regional anaesthesia

8. Physical principles related to the working of anaesthetic equipment including vapourisers, ventilators and monitoring equipment.

9. Clinical Measurements and Instrumentation in relation to
   (i) Cardiovascular system
   (ii) Respiratory system
   (iii) Temperature & Metabolism
   (iv) Nervous system
   These are incorporated within the subspecialties of Anaesthesia listed in 3.5
10. Resuscitation and Transfer of Patients
   (i) Cardiopulmonary resuscitation- Basic Life Support and Advanced Cardiac Life Support.
   (ii) Resuscitation of the critically ill patient

11. Total Intravenous Anaesthesia.

12. Anaesthesia outside the Operating Room including radiology, radiotherapy, Psychiatry and field anaesthesia.

The candidate is expected to have a detailed theoretical knowledge and some practical skills of anaesthesia for Paediatric, Cardiothoracic and Neuro-surgery, intensive therapy and pain relief (beyond the early post-operative period).

3.2. ALLIED SPECIALTIES

Candidates are expected to have a good knowledge of aspects of Medicine, Surgery, Paediatrics, Obstetrics and Gynaecology relevant to anaesthesia for elective and emergency surgery. All candidates are expected to spend 3 months in Medicine and 2 weeks in Paediatricsrotating through the following units:

(i) Cardiology - 3 weeks
(ii) Respiratory - 3 "
(iii) Neurology - 2 "
(iv) Endocrinology/Metabolic Diseases2weeks
(v) Nephrology) - 2weeks
(vii) Paediatrrics - 2 weeks, i.e. 1week in the Special Care Baby Unit and 1 week in Children's Emergency Unit

3.3. OUTISDE ROTATIONS IN FULLY ACCREDITED TRAINING INSTITUTIONS

In centers with partial accreditation, the following periods are to be spent in the specialties not immediately available in the institution;

(i) Anaesthesia for Cardiothoracic Surgery 1.5 months

(ii) Anaesthesia for Neurosurgery including Neuro-radiology 1.5 months

The rotations in cardiothoracic anaesthesia and neurosurgical anaesthesia can run concurrently for 3 months.

(iii) Intensive Care Medicine 2 months

It is mandatory, therefore that such institutions make necessary arrangements to expose their residents to these postings elsewhere.

3.4. GENERAL PERIOPERATIVE SKILLS ACQUISITION

At this level, the candidate is expected to perform the following:

1. Complete preoperative patient assessment and Risk stratification
2. Preoperative preparation of patients and strategies to optimize outcomes for surgical, obstetric, paediatric, procedural and anesthesia care. WHO checklist.
3. Perianesthesia care during induction, maintenance and emergence from anesthesia, Selection of medications
4. Selection of equipment and monitoring techniques
5. Fluid management strategies. Blood transfusion requirements
6. Patient positioning and risks associated with patient positioning
7. Common local and regional anesthesia techniques-. Subarachnoid block, epidural block, subarachnoid block, plexus blocks- pharmacology of local anaesthetics, adjuvants, techniques and complications, anatomic landmarks, the use of nerve stimulation and ultrasound. Intravenous regional anaesthesia.
8. Perioperative temperature regulation and preventionof heat loss
9. Pain Medicineincluding perioperative pain medicine and chronic pain management. This is incorporated within the subspecialties of Anaesthesia as listed in 3.5
10. Acute postoperative care in the post-anesthetic care unit (PACU), management of common postoperative problems.

Also, the candidate is required to acquire great skill of applied pharmacology viz a viz:

i) Prescription writing
ii) Control drugs and drug dependence
iii) Adverse reactions to drugs
iv) Prescribing for children
v) Prescribing for terminal cases
vi) Prescribing for the elderly
vii) Emergency treatment of poisoning

3.5. DURATIONS OF SPECIALTY ANAESTHESIA, MEDICINE AND PAEDIATRIC ROTATIONS

At the end of the Junior Residency training, the resident is expected to have undergone uninterrupted rotations through the following specialties for 24 months:

	COURSE CODE	**Specialties**	**Months**	**Contact academic (Seminars, tutorials & presentations)**	**Contact Clinical/ ICU hrs/wk (total hours)**	**Credit Units**

				hrs/ wk (total hours)		
3.5.1	ANE 911	Obstetric anaesthesia and analgesia	2	3(24)	40 (320)	8
3.5.2	ANE 912	Paediatricanaesthesia	2	3 (24)	40 (320)	8
3.5.3	ANE 913	Gynaecologicanaesthesia	1	3 (12)	40 (160)	4
3.5.4	ANE 914	Neurosurgical anaesthesia	1.5	3 (18)	40 (240)	6
3.5.5	ANE 915	Cardiothoracicanaesthesia	1.5	3 (18)	40 (240)	6
3.5.6	ANE 916	Urologic anaesthesia	1	3 (12)	40 (160)	4
3.5.7	ANE 917	Anaesthesia for Orthopaedic surgery	1	3 (12)	40 (160)	4
3.5.8	ANE 918	Anaesthesia for General surgery	1.5	3 (18)	40 (240)	6
3.5.9	ANE 919	Anaesthesia for Oral and Maxillo-facialsurgery	1	3 (12)	40 (160)	4
3.5.10	ICU 920	Intensive Care Medicine	2	3 (24)	40 (320)	8
3.5.11	ANE 921	Anaesthesia for Burns, Plastic & Reconstructive Surgery	1	3 (12)	40 (160)	4
3.5.12	ANE 922	Ophthalmologic anaesthesia	1	3 (12)	40 (160)	4
3.5.13	ANE 923	Otorhinolaryngologicanaesthesia	1	3(12)	40 (160)	4
3.5.14	ANE 924	Anaesthesia for Trauma	1	3 (12)	40 (160)	4
3.5.15	ANE 925	Anaesthesia for Ambulatory Surgery	1	3 (12)	40 (160)	4
3.5.16	ANE 926	Anaesthesia for Emergency Surgery	1	3(12)	40 (160)	4
3.5.17	MED	Medicine Posting for Anaesthetists	3	2 (24)	20 (240)	6
3.5.18	PAD 941	Paediatrics Posting for Anaesthetists	0.5	4 (8)	15 (30)	1
			24			**89**

NOTE: Figures in parentheses indicate total contact hours
Academic contact hours: 15 hours = 1 credit unit
Clinical Hours: 45 hours = 1 credit unit

3.5.1. ANE 911: OBSTETRIC ANAESTHESIA AND ANALGESIA. 2 MONTHS. 8 CREDIT UNITS.

	TITLE	**CREDIT UNITS**	**NO OF MCQs**	**LEVEL**
3.5.1.1	**General Principles and Applied Basic Sciences:** Relevant anatomy, physiology and pharmacology, antenatal care relevant to anaesthesia, cardiotocography, assessment of foetal wellbeing, indications for Caesarean section and grading of urgency for Caesarean section, uterotonic agents and tocolytics.	2	**5**	II-IV

3.5.1.2.	**Analgesia for labour:** systemic analgesics, inhalational analgesics, epidural analgesia, patient-controlled analgesia, nerve blocks	1	**2**	II-IV
3.5.1.3.	**Anaesthesia for Caesarean Section:** Preoperative preparation, acid aspiration prophylaxis, pulmonary aspiration,Generalanaesthesia, failed intubation drill, central axial blockade (subarachnoid, epidural, combined spinal-epidural), Postoperative pain management. Enhanced recovery from Caesarean section.	2	**5**	II-IV II-IV
3.5.1.4.	**High risk obstetrics:** Anaemia, pre-eclampsia and eclampsia, obstetric haemorrhage, foetal distress, amniotic fluid embolism, cardiac diseases, other medical diseases (obesity, thyroid, diabetes mellitus, hypertension, sickle cell disease, renal, neuromuscular), HIV/AIDS, coagulation disorders. Molar pregnancy. Maternal mortaliy.	2	**2**	II-IV
3.5.1.5.	**Others:** Anaesthesia for non-obstetric surgery, Neonatal resuscitation.	1	**2**	II-IV
	TOTAL	8	**16**	

Clinical Skills and Competencies. The Junior Resident will provide safe anaesthesia for the pregnant patientscheduled for obstetric and non-obstetric surgeries and should be competent in the following:

1. Taking appropriate history, carry out relevant physical examination (airway assessment, respiratory, cardiovascular and neurological systems)
2. Carry out all methods of labour analgesia- systemic, neuraxial
3. Manage Airway including the difficult airway and Mendelson's syndrome.
4. Manage obstetric haemorrhage and other high risk obstetrics
5. Resuscitation of the pregnant woman- shock, cardiopulmonary resuscitation
6. Resuscitation of the neonate

3.5.2. ANE 912: PAEDIATRIC ANAESTHESIA. 2 MONTH. 8 CREDIT UNITS.

	TITLE	**CREDIT UNITS**	**NO OF MCQs**	**LEVEL**
3.5.1.	**General Principles and Applied Basic Sciences:**Anatomy, physiology and pharmacology relevant to paediatricanaesthesia. Major differences in anatomy, physiology and pharmacology of children and adults. Special considerations of anatomy, physiology and pharmacology in neonates. Considerations of respiratory, cardiovascular, gastrointestinal, renal, haematologic, and central nervous systems.	2	**4**	II-IV

	Thermoregulation. Fluid management and blood transfusion. Neonatal and paediatric fluid requirements. **Anaesthetic equipment:**oro/nasopharyngeal airways, face masks, supraglotic airway divices, laryngoscopes, tracheal tubes,anaesthetic breathing systems (Ayre's T-piece with Jackson-Rees modification, Humphrey ADE, Circle absorption, Bain systems).			
3.5.2.	**Principles of Anaesthesia:** Preoperative assessment (neonates, ex-premature infants, sickle cell disease, systemic disease, child with upper respiratory tract infection, child with heart murmur, uncooperative child. Child protection. Consent. Fasting guidelines. Premedication and routes of administration. Topical anaesthesia (EMLA), Induction of anaesthesia (inhalational versus intravenous). Airway management. Laryngospasm. Perioperative pain management. Conduct of anaesthesia. Central neural axial blockade (epidural, subarachnoid and caudal for pain management). Ilioinguinal and iliohypogastric nerve block, dorsal nerve block of the penis, other nerve blocks in the child. Acute pain management. Discharge criteria from PACU. **Anaesthesia in the following conditions-** diaphragmatic hernia, gastrochisis/exomphalos, trachea-oesophageal fistula, patent ductus arteriosus, pyloric stenosis, intussusception, herniotomy circumcision, orchidopexy, cleft lip and palate, congenital tallipes equinovarus, childhood malignancies. Other ongenital abnormalities (myeloningocoeles, spina bifida, hydrocephalus, anorectal anomalies, encephalocoeles).	6	**12**	II-IV
	TOTAL	8	**16**	

Clinical Skills and Competencies. The Junior Resident will provide safe anaesthesiaand procedural sedation for the paediatric patients scheduled for surgery and should be competent in the following:

1.Taking appropriate history and performing appropriate physical examination (airway assessment, cardiovascular, respiratory and neurological examination) to assess the patient's status.

2. Prescribe appropriate premedication to the child scheduled for surgery

3. Manage the difficult venous access

4. Manage fluid and blood replacement in the paediatric patient

5. Manage specific paediatric emergencies and syndromes

6. Provide basic and advanced life support to the paediatric patient

7. Manage emergency conditions- hypoxia, bronchospasm, apnoea, upper airway obstruction, bradycardia, laryngospasm, cardiac arrest, hypovolaemia, epiglottitis, croup, inhaled foreign body, postoperative stidor

3.5.3. ANE 913: GYNAECOLOGIC ANAESTHESIA. 1 MONTH. 4 CREDIT UNITS

	TITLE	CREDIT UNITS	NO OF MCQs	LEVEL
3.5.3.1.	**General Principles and Applied Basic Science:**Applied Basic Science as in 16.1.1.,Special Positioning and their complications (Lithotomy, Trendelenburg, Knee-chest), Postoperative nausea and vomiting in some procedures, Deep vein thrombosis in pelvic surgeries and pulmonary embolism, cervical dilatation and vagal stimulation	1	**2**	II-IV
3.5.3.2.	**Procedures and special concerns:** Surgeries on ovaries, uterus, cervix, vaginal wall, Evacuation of Retained Products (ERCP), Suction/Vaginal Termination of Pregnancy (STOP/VTOP), hysteroscopy, malignancies, chemotherapy and effects on anaesthesia, Hysterectomy, myomectomy, laparoscopy and challenges, ectopic pregnancy (resuscitation and management), anaesthetic techniques (regional techniques, general anaesthesia).	3	**6**	II-IV
	TOTAL	4	**8**	

Clinical Skills and Competencies. The Junior Resident will provide safe anaesthesia for women presenting with variety of gynaecological pathologies scheduled for surgery and should be competent in the following:

1. Basic evaluation- history, physical examination and relevant investigations
2. Recognizing and preventing the complications of positioning
3. Be involved in management for DVT/prophylaxis
4. Recognize possibility of PONV and manage appropriately
5. Be able to handle challenges of laparoscopy surgery

3.5.4. ANE 914: NEUROSURGICAL ANAESTHESIA. 1.5 MONTHS. 6 CREDITS

	TITLE	CREDIT UNITS	NO OF MCQs	LEVEL
3.5.3.1.	**General Principles and Applied Basic Sciences**:neuroanatomy, neurophysiology, pharmacology relevant to neuroanaesthesia (Sedatives, Anticonvulsants, Hypnotics, Analgesics, Inhalation agents, Neuromuscular blocking drugs, Anticholinesterases, Neuroprotection, Diuretics, Hypotensive agents,	2	2	II-IV

	Vasopressors, Corticosteroids), Clinical Monitoring (Haemodynamic and respiratory monitoring, Cerebral blood flow, Intracranial pressure (ICP) and cerebral perfusion pressure, Cerebral metabolism monitoring such as brain tissue oxygen monitoring and jugular bulb saturation monitoring, detection of venous air embolism detection, Transcranial Doppler ultrasound, electroencephalogram and evoked potentials. Neurological assessment.			
3.5.3.2.	**Procedures:**Supratentorial surgery, Posterior fossa surgery, Pituitary surgery, 'Awake craniotomy', Spinal surgery, spinal cord decompression, neonatal neural tube defects, Paediatric neurosurgery, surgery for hydrocephalus,management of head injury including neurosurgical intervention (craniotomy, craniectomy, burr hole). Fluid management and blood transfusion.	4	8	II-IV
	TOTAL	6	10	

Clinical Skills and Competencies. The Junior Resident will provide safe anaesthesia for patients scheduled for neurosurgical procedures and should be competent in the following:

1. Taking appropriate history and performing an appropriate physical examination (including airway assessment, cardiovascular, respiratory and neurological examinations)
2. Pre-anaesthesia preparation for neuroanaesthesia
3. Airway management, difficult airway, ways to obtund laryngo-pressor response
4. Positioning and challenges, prevention of complications of abnormal positioning
5. Monitoring in neuroanaesthesiaas in 16.3.1.
6. Management of raised intracranial pressure and venous air embolism.
7. Post-anaesthesia care and post neurosurgical care
8. Initial management of the head injured patient

3.5.4. ANE 915: CARDIOTHORACIC ANAESTHESIA. 1.5 MONTHS. 6 CREDIT UNITS.

	TITLE: ANAESTHESIA FOR CARDIAC SURGERY	**CREDIT UNITS**	**NO OF MCQs**	**LEVEL**
3.5.4.1.	**General Principles and Applied Basic Science:** Anatomy, Physiology and Pharmacology relevant to cardiovascular physiology, Determinants of myocardial oxygen demand and supply, Clinical chemical	0.5	2	II-IV

	pathology, Medical Physics, Electrocardiogram. Exercise electrocardiography, exercise electrochadiography, ECHO, ABG, Specific drugs used in cardiac patients (inotropes, vasopressors, antiarrhythmics, antihypertensives, anticoagulants, antiaginal agents), age-related co-morbidities (stroke),			
3.5.4.2.	**Pathophysiology and Management of Cardiovascular Diseases:** Congenital heart diseases (Septal defects, Patent ductusarteriosus, Coarctation of the aorta, Tetralogy of Fallot, Transposition of the Great Arteries), Valvular heart diseases, Ischaemic hear diseases, myocardial infarction, Atrio-ventricular block, Cardiac arrhythmias, Cardiomyopathies, Thromboembolism, Acute coronary syndromes, Hypertension and hypertensive heart disease, Coronary and Peripheral arterial disease, constrictive pericarditis..	0.5	1	II-IV
3.5.4.3.	**Anaesthesia and Perioperative Care of the Cardiac Patient:**Assessment, scoring systems and guidelines, risk assessment, investigations, anaesthesia implications, and management of the following: Ischaemic heart disease and associated perioperative risk factors, Congenital heart disease, Valvular heart disease, Hypertension, Cardiac arrhythmias. Surgery on the heart, pericardium, coronary arteries and cardiac valves, Surgery on great vessels and branches of great vessels, Pace maker insertion, Procedures requiring anaesthesia in cardiac catheterisation laboratory (paediatric and adult), Cardioversion, Peripheral vascular surgery, High risk patients for non-cardiac surgery(previous myocardial infarction), Principles of anaesthesia and perioperative care for cardiac and non-cardiac surgery: Invasive monitoring, ABG, Cardiopulmonary bypass including weaning from bypass and ECMO, Basic design of CPB machine, physiological, endocrine and pharmacological effects of CPB, myocardial protection (cardioplegia, intentional hypothermia), Cross-clamping of the aorta and unclamping of the aorta , Cerebral protection,Spinal cord protection, Organ protection, Blood coagulation and anticoagulation (including Point of care testing), Perioperative arrhythmias, Poor cardiac output states. **Vascular trauma**-major resuscitation, equipment (cell salvage, level 1) and methods Elective postoperative ICU admission.	2	3	II-IV

	TITLE: ANAESTHESIA FOR THORACIC SURGERY	**CREDIT UNITS**	**NO OF MCQs**	**LEVEL**
3.5.4.4.	**General principles and Applied Basic Sciences:**Anatomy, physiology and pharmacology relevant to thoracic anaesthesia, elderly patients, smoking with co-morbitities (bronchogenic carcinoma, pleural effusion, empyema, oesophageal obstruction, malnutrition, cachexia) and reduced cardiorespiratory reserve, static and dynamic lung volumes and capacities, arterial blood gas analysis, CT, CXR, Exercise tolerance, Exercise testing, optimization of lung function and bronchodilator therapy, lateral decubitus positioning, V/Q mismatch.	1	**2**	II-IV
3.5.4.5.	**Anaesthesia and Perioperative Care for Thoracic Surgery:** Preoperative assessment for fitness for lung surgery and one-lung ventilation, Thoracotomy, Lung surgery (wedge resection, lobectomy	2	**4**	II-IV

	andpneumonectomy), Thoracoscopy, Video-Assisted Thoracoscopic Surgery (VATS), Lung volume reduction and bullectomy, Drainage of empyema and decortication, Repair of broncho-pleural fistula, Pleurectomy/pleurodesis, Oesophagectomy, Chest injuries, Thoracoscopicsympathectomy, First rib resection, Tracheo-oesophageal fistula, Pericardiectomy/Pericardial window, Rigid bronchoscopy (Biopsy, stent insertion, foreign body removal), Mediastinal mass resection, Surgery on the thoracic aorta, One-lung anaesthesia (indication and management of hypoxia and ventilation), Differential lung ventilation, Tracheal and bronchial surgery, Mediastinoscopy, Lung bullae and cysts, Tension pneumothorax, Superior vena cava obstruction (syndrome), Empyema. Fluid management and blood transfusion. Perioperative pain management post-thoracotomy, elective ICU admission and ventilation.			
	TOTAL	6	**12**	

Clinical Skills and Competencies. The Junior Resident will provide safe anaesthesia for patients scheduled for cardiac, thoracic and vascular procedures and should be competent in the following:

1. Placement and use of invasive monitoring- (arterial, central venous, pulmonary artery)
2. Interpretation of ECG preoperatively and intraoperatively, ECHO.
3. Interpretation of radiological investigations (CXR, CT, MRI, contrast studies)
4. Interpretation of PFTs, ABG.
5. Skillful use of durgs used for the CVS e.g. vasopressors, inotropics, vasodilators, antiarrythmic drugs
6. DC defibrillation, cardioversion, cardiac pacemakers.
7. Placement of double lumen endotracheal tubes.
8. Fibreoptic bronchoscopy and rigid bronchoscopy
9. Basic trans-oesophageal/ trans thoracic echo examinations.
10. Methods of post-operative pain management following cardiothoracic procedures
11. Assistance with cardiopulmonary bypass, communication with perfusionist and surgeon during CPB
12. Placement and care of chest drains and appropriate use of suction.

3.5.6. ANE 916: UROLOGIC ANAESTHESIA. 1 MONTH. 4 CREDIT UNITS

	TITLE	**CREDIT UNITS**	**NO OF MCQs**	**LEVEL**
3.5.6.1.	**General Principles and Applied Basic Science:** Anatomy, Physiology and Pharmacology of the urogenital system relevant to urological anaesthesia, Elderly with co-morbitities, Positioning, acute and chronic renal failure, obstructive uropathy, chronic kidney disease, dialysis, renal replacement therapy.	1	**2**	II-IV
3.5.6.2.	**Anaesthesia and Perioperative Care:** Cystoscopic procedures, Open prostatectomy, radical prostatectomy, Transurethral Resection of the Prostate (TURP) and TURP syndrome, Transurethral Resection of Bladder Tumour(TURBT), Nephrectomy, Cystectomy, Urinary Diversion procedures, stone removal (kidney, ureter, bladder), urethroplasty, hypospadias repair, circumcision,	3	**6**	II-IV

	suprapubiccystostomy**.** Renal transplant.Roboticsurgery.Techniques of anaesthesia (general anaesthesia, subarachnoid block, epidural anaesthesia, caudal anaesthesia, compined spinal-epidural anaesthesia).			
	TOTAL	4	**8**	

Clinical Skills and Competencies. The Junior Resident will provide safe anaesthesia for patients scheduled for urologic procedures and should be should be competent in the following:

1. Basic evaluation- history, physical examination and relevant investigations
2. Interpretation of renal function tests
3. Use of the appropriate technique of anaesthesia
4. Recognize and manage the TURP syndrome

3.5.7. ANE 917: ANAESTHESIA FOR ORTHOPAEDIC SURGERY. 1 MONTH. 4 CREDIT UNITS

	TITLE	**CREDIT UNITS**	**NO OF MCQs**	**LEVEL**
3.5.7.1.	**General Principles and Applied Basic Science: Anatomy of bones (spine, pelvis, long bones) and joints,** rheumatoid arthritis, osteoarthritis, osteoporosis and ankylosing spondylitis, prolonged immobility, anticoagulation, hazards of positioning (supine, lateral, prone, sitting), specific complications (Bone cement Implantation Syndrome, Diagnosis and management of fat embolism, Upper and lower limb compartment syndromes), venous thromboembolism, blood loss (replacement, blood conservation strategies), Tourniquets, Elderly patients presenting for orthopaedic procedures.	1	2	II-IV
3.5.7.2.	**Anaesthesia and Perioperative Care:** Open reduction and fixation, external fixation, Total hip replacement, Total knee replacement, arthroscopy, Cruciate ligament repair, Ankle surgery, Foot surgery, Spine surgery, Shoulder surgery, Total shoulder replacement, Elbow replacement, Hand surgery, cervical spine fracture, Congenital tallipes, pelvic fractures, amputation.Various options for techniques of anaesthesia including plexus blocks, nerve blocks. Perioperative pain management.	3	6	II-IV
	TOTAL	4	8	

Clinical Skills and Competencies. The Junior Resident will provide safe anaesthesia for patients scheduled for orthopaedic procedures and should be competent in the following:

1. Basic evaluation- history, physical examination and relevant investigations.
2. Sensitive handling of elderly with cognitive and communication problems
3. Recognize intraoperative complications and manage appropriately (e.g. bone cement implantation syndrome, blood loss and replacement, venous thromboembolism)
4. Use of appropriate technique of anaesthesia including major plexus block, nerve blocks, intravenous regional anaesthesia.

3.5.8. ANE 918: ANAESTHESIA FOR GENERAL SURGERY. 1.5 MONTHS. 6 CREDIT UNITS

	TITLE	CREDIT UNITS	NO OF MCQs	LEVEL
3.5.8.1.	**General Principles and Basic Science:** Basic Sciences relevant to regions of the body covered by general surgery {abdomen and its organs(GIT- liver, gall bladder, spleen), endocrine glands (thyroid, pancreas) and salivary glands}, acute abdomen, hernias, surgical diseases of intra-abdominal organs, oncology	1	2	II-IV
3.5.8.2.	**Anaesthesia and Perioperative Care:**Appropriate preoperative preparations, Fluid management, temperature control, Major colorectal surgery, hemicolectomy, sigmoid colectomy, Colostomy, Anterior resection, AP resection, Gastrectomy, Cholecystectomy, hepato-biliary surgery, Closure of loop colostomy or loop ileostomy, oncological considerations, The sick laparotomy, Laparoscopic cholecystectomy, laparoscopic hemicholectomy/anterio resection, Appendicectomy, Breast surgery, Surgery for blunt and penetrating intra-abdominal injuries, Hernia repairs (diaphragmatic, inguinal, femoral, umbilical), Surgery for intestinal obstruction from various causes, thyroidectomy	5	10	II-IV
	TOTAL	6	12	II-IV

Clinical Skills and Competencies.The Junior Resident will provide safe anaesthesia for patients scheduled for general surgery procedures and should be competent in the following:

1. Basic evaluation- history, physical examination and relevant investigations.
2. Appropriate preoperative preparation of the patient scheduled for a general surgery procedure
3. Choice of appropriate anaesthetic technique for the scheduled procedure.

3.5.9. ANE 919: ANAESTHESIA FOR ORAL AND MAXILLOFACIAL SURGERY. 1 MONTH. 4 CREDIT UNITS

	TITLE	CREDIT UNITS	NO OF MCQs	LEVEL
3.5.9.1	**General Principles and Applied Basic Sciences:** Basic sciences relevant to the specialty (anatomy of head and neck, abnormal facies), presentation of jaw tumours, dental abnormalities, Challenges of shared airway, Airway devices and types of tracheal tubes, eg, Pollard, RAE devices, Equipment for difficult tracheal intubation, Equipment for jet ventilation, Difficult airway algorithm, Challenges of prolonged surgery, blood loss and replacement, postoperative airway management, Infective endocarditis prophylaxis in patients with cardiac disease.	1	**2**	II-IV
3.5.9.2	**Anaesthesia and Perioperative Care:** Oral/maxillofacial surgery, extraction of impacted/buried teeth, Maxillary/mandibular osteotomy, fractures of the zygomatic complex, Mandibular fractures, Anaesthesia for dentistry, Outpatient dental procedures, Simple dental extrations, Sedation for dentistry, Dental procedures on the mentally handicapped, Dental procedures on patients with bleeding disorders	3	**6**	II-IV
	TOTAL	4	**8**	

Clinical Skills and Competencies. The Junior Resident will provide safe anaesthesia for patients scheduled for maxillofacial and dental surgery and should be competent in the following:

1. Basic evaluation- history, physical examination and relevant investigations.
2. Spontaneous gaseous induction for airway obstruction
3. Tracheal intubation- oral, nasal, use of special tubes, placement and removal of packs,
4. Recognizing the difficult airway.
5. Use of stylets, bougies, awake intubation, retrograde catheter technique, fibreoptic intubation, cricothyrotomy, laryngeal mask airway.
6. Transtracheal ventilation, Failed intubation drill
7. Criteria for extubation, Post extubation of difficult airway drill
8. Postoperative airway management

3.5.10. ICU 920: INTENSIVE CARE.2 MONTHS. 8 CREDIT UNITS

	TITLE	CREDIT UNITS	NO OF MCQs	LEVEL
3.5.10.1	**General Principles of Intensive Care and Applied Basic Sciences:** Organization of ICU (location, bed capacity, layout, staffing, equipment, protocol for admission and discharge), Transport of the critically ill, Sedation and analgesia, Principles of antimicrobial therapy, Inotropic support, Nutritional support, Prevention of complications (nosocomial infections, infection control, ventilation induced lung injury, thromboembolic disease, stress ulcer), Monitoring including invasive monitoring of all systems, Scoring systems in ICU, General care of the critically ill patient.	2	**5**	II-IV
3.5.10.2	**Specific Disorders in ICU:** **Cardiovascular:** shock (types), Cardiorespiratory arrest, Hypertension, Cardiac arrhythmias, Valvular heart disease, CCF, Ischaemic heart disease, Myocardial infarction. **Respiratory:** Respiratory failure, Pulmonary function tests, Oxygen therapy, Mechanical ventilation (invasive and non-invasive), ARDS, ALI, Airway obstruction, Pneumonia, COPD, Asthma, Pulmonary embolism. **Neurological:**Causes of coma, Raised intracranial pressure (monitoring and management), Cerebral protection, Brain stem death, Stroke (haemorrhagic, embolic), Seizures, Status epilepticus, GuillainBarre's syndrome. Myasthenia gravis, Tetanus, Parkinson's disease, Rabies, Cerebral oedema. **Renal failure:** Acute and chronic renal failure (causes and management0, renal replacement therapy. **Major Trauma:** Initial resuscitation of the trauma patient, transport, team approach, Head injuries, Chest injuries, Maxillo-facial injuries, Injuries to major vessels (venae cavae, pulmonary, aorta), **Endocrine:** Diabetes mellitus, pituitary disorders, Addison's disease, Cushing's syndrome, phaeochromocytoma, thyroid disorders. **Others:**Electrolyes, fluids, acid-base disorders, Haematologic disorders (anaemia, transfusion reactions), oncologic, immunologic, immunosuppressive disorders, Gastrointestinal disorders,	6	**25**	II-IV

	Pregnancy disorders (septic abortion, pre-eclampsia, eclampsia, obstetric haemorrhage, amniotic fluid embolism), Toxins, drug overdose, poisoning, envenomation, burns, corrosive ingestion, electrocution			
	TOTAL	8	**30**	

Clinical Skills and competencies. The Junior Resident will provide care for critically ill patients in the ICU. Specific clinical and technical skills in which Trainees are required to be competent include the following:

1. The organization of the ICU
2. Importance and value of team approach
3. General principles of managing ICU patients- resuscitation, diagnosis and monitoring, specific and general care
4. Cardiovascular system:
    - Using appropriate inotropic agents, vasodilators, and vasoconstrictors
    - Managing cardiac arrhythmias, acute coronary syndromes
    - Using appropriate antimicrobial agents in heart disease,
    - Cardioversion and defibrillation
    - Advanced life support
    - Placement of central venous lines, intra-arterial lines and invasive monitoring of cardiovascular system
    - The management of temporary cardiac pacemakers.

5. Respiratory System:
    - Oxygen therapy
    - Mechanical ventilation (invasive and non-invasive) CPAP, modes of ventilation, weaning modes
    - Management of pneumothorax, pleural effusion
    - Percutaneous tracheostomy
6. Neurological diseases
    - Monitoring intracranial pressure and maintaining cerebral perfusion
    - Managing cerebral oedema
    - Cerebral protection
    - Managing seizure
7. Renal failure’
    - Principles of dialysis and renal replacement therapy
    - Drug use in renal failure
8. Other systems- To institute appropriate management
9. Coomunication with grieving relatives
10. Medical ethics- end of life decisions, organ harvesting

3.5.11. ANE 921: ANAESTHESIA FOR BURNS, PLASTIC AND RECONSTRUCTIVE SURGERY. 1 MONTH. 4 CREDIT UNITS

	TITLE	CREDIT UNITS	NO OF MCQs	LEVEL
3.5.11.1	**General Principles and Applied Basic Sciences:** Complications of burn injuries,repeat surgeries (debridements),Minor procedures requiring local anaesthetic infiltrations and sedation (ketamine, midazolam, propofol), difficult airway management in head and neck pathology presenting difficult airway, poor access for iv lines, probes, ECG leads, monitoring devices due to extensive burns, heat conservation in major burns, major intraoperative blood loss, prolonged surgey,	1	**2**	II-IV
3.5.11.2.	**Principles of Anaesthesia:** General anaesthesia for head and neck and other procedures, regional techniques, plexus blocks for limb procedures, for prolonged procedures (consider vascular access, blood loss, fluid balance, body temperature, positioning, DVT prophylaxis, nasogastric tube, eye care, HDU/ICU for postoperative care), appropriate postoperative pain management. Anaesthesia for - skin grafting, free flap surgery, gynaecomastia, excision of haemangiomas, breast reduction, breast augmentation, liposuction, carpal tunnel release, Dupuytren's contracture, repair of hand tendons, syndactyly etc.	3	**6**	II-IV
	TOTAL	4	**8**	

Clinical Skills and Competencies. The Junior Resident will provide safe anaesthesia for patients scheduled for Plastic and Reconstructive surgery, and should be competent in the following:

1. Basic evaluation- history, physical examination and relevant investigations.
2. Multidisciplinary perioperative care
3. Options of anaesthetic techniques- general, local infiltration, nerve blocks, plexus blocks, central-neural axial block.
4. Understand the principles of the various surgeries
5. Difficult airway management.
6. Difficulties with monitoring, venous access and positioning.
7. Invasive cardiovascular monitoring in extensive burns
8. Challenges of prolonged surgery- fluid management, heat conservation, blood flow, DVT, postoperative care in HDU/ICU
9. Major blood loss and replacement
10. Appropriate pain management- pre, intra and post-operative

3.5.12. ANE 922: OPHTHALMIC ANAESTHESIA. 1 MONTH. 4 CREDIT UNITS

	TITLE	CREDIT UNITS	NO OF MCQs	LEVEL
3.5.12.1	**General Principles and Applied Basic Sciences:** Applied anatomy (globe, orbit, muscles, nerves) and physiology of the eye, pharmacologic agents affecting the eye, intraocular pressure and effects of anaesthesia IOP, oculomedullary reflexes (oculocardiac, oculorespiratory, oculoemetic), elderly	1	**2**	II-IV

	population with comorbidities, local anaesthetic agents for eye surgery, topical agents, vasoconstrictors, mydriatics, miotics and agents to reduce intraocular pressure and the systemic effects of these drugs.			
3.5.12.2	**Principles of Anaesthesia:** General anaesthesia versus local anaesthesia (factors determining choice), Local anaesthetictechniques(retrobulbar, peribulbar, sub-Tenon's, topical, subconjunctival), General anaesthesia (shared field, proseal or reinforced LMA or ETT, N2O and sulfur hexafluoride, octafluoropropane or air, supplementary local block). Anaesthesia for cataract extraction, strabismus surgery, vitreo-retinal surgery, glaucoma drainage, dacrocystorhinostomy, penetrating eye injury and the use of suxamethonium, trabeculectomy, enucleation, evisceration, laser eye surgery, EUA.	3	**6**	II-IV
	TOTAL	4	**8**	

Clinical Skills and Competencies. The Junior Resident will provide safe anaesthesia for patients scheduled for ophtalmic surgery, and should be competent in the following:
1.Basic evaluation- history, physical examination and relevant investigations, assessment of the elderly
2. The choice between general and local anaesthesia for eye surgery
3. Management of shared field between surgeon and anaesthesia
4. Performing local anaesthetic blocks for eye surgery
5. Management of local anaesthetic toxicity

3.5.13. ANE 923: OTORHINOLARYNGOLOGIC ANAESTHESIA. 1 MONTH. 4 CREDIT UNITS

	TITLE	**CREDIT UNITS**	**NO OF MCQs**	**LEVEL**
3.5.13.1	**General Principles and Applied Basic Sciences:** Applied anatomy and physiology ear, nose and throat, airway problems (obstruction, difficult or impossible airway), shared field/airway, difficult airway management options, types of ETT, reinforced LMA, obstructive sleep apnoea,	1	**2**	II-IV
3.5.13.2	**Principles of Anaesthesia:** Pre-operative airway assessment, Examination under anaesthesia, Tonsillectomy and adenoidectomyand postoperative bleeding, tracheostomy, foreign body removal ear, nose and throat, laryngoscopy and examination under anaesthesia, nasal cavity surgery (polypectomy, septoplasty, functional endoscopic sinus surgery), Microlaryngoscopy, Tracheal resection, Radical head and neck surgery (Laryngectomy, Pharyngolaryngectomy), managing airway obstruction (laryngeal papillomas, laryngeal tumours), drainage of retropharyngeal and peritonsilar (Quinsy) abscesses, Laser surgery including fire and occupational hazards, Nasal and sinus operations, Parotid tumour surgery, Myringoplasty, Middle ear surgery, Microsurgery of the ear, grommet insertion. Admission of patients with OSA into ICU/HDU	3	**6**	II-IV
	TOTAL	4	**8**	

Clinical Skills and Competencies. The Junior Resident will provide safe anaesthesia for patients scheduled for otorhinolaryngologic surgery, and should be competent in the following:

1. Taking an appropriate history and performing an appropriate physical examination (including airway assessment, cardiovascular, respiratory) to assess the patient's status.
2. Recognizing and securing the difficult airway
3. Understand the challenges of shared airway
4. Tracheal intubation (nasal intubation including techniques of blind nasal intubation, Awake intubation, Retrograde catheter technique, Fibreoptic intubation, Cricothyroidotomy and
percutaneous tracheostomy. Use of special tubes
5. Have an understanding of difficult airway equipment, use of stylets and bougies
6. Local and topical anaesthesia techniques of the airway (including airway blocks)
7. Laryngeal mask airway intubation
8. Placement and removal of packs
9. Failed intubation or ventilation drill, Transtracheal ventilation.
10. Management of upper airway obstruction and laryngospasm
11. Criteria for extubation
12. Post extubation airway obstruction and re-intubation drill
13. Postoperative bleeding and management.
13. Postoperative care may be in HDU/ICU

3.5.14. ANE 924: ANAESTHESIA FOR TRAUMA SURGERY. 1 MONTH. 4 CREDIT UNITS

	TITLE	**CREDIT UNITS**	**NO OF MCQs**	**LEVEL**
3.5.14.1	**General Principles and Applied Basic Sciences:**Prehospital phase, Hospital phase, triage (multiple casualties, mass casualties), primary survey (ABCDE), resuscitation (airway, breathing, ventilation and oxygenation, circulation and haemorrhage control), Glasgow Coma Scale and other scores of consciousness,secondary survey, airway and ventilatory management, shock (types and management), specific trauma (chest, abdomen and pelvis, head, spine and spinal cord, thermal injuries), special populations (geriatric, paediatric, pregnant women), trauma severity scores, thermoregulation.	1	**2**	II-IV
3.5.14.2	**Principles of Anaesthesia:** Emergency airway management, establishing intravenous access, priorities of resuscitation, investigations, blood loss and massive blood transfusion, blood salvage, and, surgical procedures. Anaesthesia for head injuries (skull depression, extradural and subdural haematoma, intracerebralhaemorrhage), chest injuries (blunt, penetrating of intrathoracic organs, one lung ventilation), abdomino-pelvic injuries (blunt, penetrating, organ laceration/rupture, bladder and urethral injuries), long bone fractures.Anaesthesia for the burn patient (debridement and skin grafting, change of dressing)	3	**8**	II-IV
	TOTAL	4	**10**	

Clinical Skills and Competencies. The Junior Resident will provide safe anaesthesia for patients presenting with major trauma, and should be competent in the following:

1. Must be knowledgeable and proficient in the current practice of the ATLS guidelines
2. Must appreciate team approach in the management of the trauma patient
3. Taking appropriate history and carrying out relevant examination
4. Managing difficult airway
5. Resuscitation of the trauma patient including CPR if the need arises
6. Perform surgical airway, needle thoracentesis, chest tube insertion, pericardiocentesis.
7. Central venous access, invasive monitoring.

3.5.15. ANE 925: ANAESTHESIA FOR AMBULATORY SURGERY. 1 MONTH. 4 CREDIT UNITS

	TITLE	**CREDIT UNITS**	**NO OF MCQs**	**LEVEL**
3.5.15.1	**General Principles:**Organization of ambullatory surgery facilities,criteria for patient selection (health status, age, complexity of procedure, transport, social support, patient's home location).	1	**2**	II-IV
3.5.15.2	**Principles of Anaesthesia:** Preoperative assessment (outpatient clinic, telephone), coexisting medical diseases, history & physical examination. General anaesthesia (TIVA, inhalational anaestthetics, LMA, Igel), perioperative analgesic for ambulatory surgery. Regional anaesthesia (local anaesthesia + sedation, field blocks, spinal, epidural, caudal, brachial plexus block etc). Discharge criteria, discharge drugs, discharge organization, unanticipated postoperative admission (indications and management)	3	**6**	II-IV
	TOTAL	4	**8**	

Clinical Skills and Competencies. The Junior Resident will provide safe anaesthesia for patients scheduled for ambulatory surgery and should be competent in the following

1. Be farmiliar with organization of ambulatory surgery facilities
2. Cooperate with all staffand persons involved- surgeons, ambulatory unit staff, patients and their carers.
3. Carry out appropriate preoperative evaluation- history, physical examination, investigations
4. Criteria for patient selection
5. Making patients with co-existing diseases fit for surgery
6. Use of appropriate anaesthetic techniques and drugs for ambulatory surgery
7. Discharge protocols.
8. Unanticipated admission

3.5.16. ANE 926: ANAESTHESIA FOR EMERGENCY SURGERY. 1 MONTH. 4 CREDIT UNITS

	TITLE	**CREDIT UNITS**	**NO OF MCQs**	**LEVEL**

3.5.16.1	**General Principles and Applied Basic Sciences:**Classification of emergency surgery, fluid and electrolyte abnormalities, hypovolaemia, haemorrhage, organ impairment, the full stomach, aspiration (Mendelson's syndrome – prevention, diagnosis and management).	1	**2**	II-IV
3.5.16.2	**Preoperative assessment and preparation:** History, physical examination including airway evaluation, laboratory investigations, assessment of volaemic status, resuscitation (fluid and blood), correction of acid-base abnormalities, acid aspiration prophylaxis **Principles of Anaesthesia:** General anaesthesia- Rapid sequence induction (requirements &technique), Difficult and failed intubation, alternative techniques of airway control, neuromuscular blocking drugs, inhalational anaesthetics, intraoperative monitoring (general and specific), fluid and blood management, perioperative analgesia, emergence, awake intubation, recovery (Ward/HDU/ICU). Regional anaesthesia for procedures ammenable to the techniques e.g. lower limbs, pelvis.	3	**8**	II-IV
	TOTAL	4	**10**	

Clinical Skills and Competencies. The Junior Resident will provide safe anaesthesia for patients scheduled for emergency surgery in any surgical specialty be competent in the following:

1. Classification of emergency
2. Thorough evaluation of the patient- history, physical examination, airway, fluid and electrolyte imbalance, haemorrhageetc
3. Preparation for the emergency patient for anaesthesia and surgery including acid aspiration prophylaxis
4. Appropriate technique of anaesthesia- general/regional

3.5.17. MED ?: MEDICINE POSTING FOR ANAESTHETISTS.3 MONTHS. 6 CREDIT UNITS

	TITLE	**CREDIT UNITS**	**NO OF MCQs**	**LEVEL**
3.5.17.1	General Principles: History taking, physical examination, Laboratory and radiological investigations, Electrocardiography, Echocardiography. Pathophysiology and management of medical diseases: Diseases of the various systems including but not limited to the following- Neurological (stroke, subarachnoid haemorrhage, space occupying lesions, upper and lower motor neurone lesions, epilepsy, tetanus, Guillain Barre's syndrome), Respiratory (pneumonias, COPD, Bronchial asthma), Cardiovascular (hypertension, coronary artery diseases, heart failure, valvular heart diseases, cardiomyopathies), Renal (acute and chronic renal failure, chronic kidney disease), Endocrine (Diabetes mellitus, phaeochromocytoma, Addison's disease, Cushing's disease, thyroid diseases, Gastrointestinal, Hepatobiliary.	6	**12**	II-IV
	TOTAL	6	**12**	

Skills and competencies as in 3.5.18

3.5.18. PED 941: PAEDIATRICS POSTING FOR ANAESTHETISTS. 0.5 MONTHS. 1 CREDIT UNIT

	TITLE	CREDIT UNITS	NO OF MCQs	LEVEL
3.5.18.1	**General Principles:**History taking , physical examination, laboratory and radiological investigations Pathophysiology and management of neonatal and paediatric emergencies sin the Neonatal Intensive Care Unit and Children Emergency Room including but not limited to the following: congenital abnormalities (valvular heart diseases, trachea-oesophageal fistula, intestinal obstruction, diaphragmatic hernia), respiratory (pneumonias, epiglottitis, asthma, other acute respiratory diseases), neurological (convulsions).	1	**8**	II-IV
	TOTAL	1	**8**	

Skills and competencies for medicine and paediatrics for anaesthetists

1. Evaluate patients with medical diseases and paediatric diseases seen in NICU and CHER
2. Management of such diseases- history, physical examinations, appropriate investigations, drug treatment and other investigations
3. Stabilize such patients who may need surgical intervention
4. Effects of the diseases on anaesthetic management
5. Effects of drug treatment on anaesthetic management
6. Intensive care management of such patients that will need ICU admission

3.6. REQUIRED SKILLS FOR THE JUNIOR RESIDENCY PERIOD

SKILL	OBSERVED	PARTICIPATED	PERFORMED	TOTAL
Intubation- routine	10	50	240	300
Use of intubating aids	10	50	30	100
Supraglotic airway device	5	5	10	20
Bag/mask ventilation	5	5	590	600
Rapid sequence induction	20	50	200	270
Difficult Airway Management	10	15	5	30
Peripheral venous access	10	10	980	1000
Intraosseus access	2	2	1	5
Central venous access	3	5	2	10
Subarachnoid block	10	10	40	60
Epidural anaesthesia	10	10	5	25
Combined spinal-epidural	10	8	2	20
Caudal block	10	5	5	20
Nerve blocks	10	10	5	25
Ophthalmic blocks	4	5	1	10
Epidural labour analgesia	2	2	1	5
TIVA	4	4	2	10
CPR	2	10	13	25
Patient	2	1	2	5

stabilization/transfer				
Interpretation of ECG			50	50
Interpretation of Routine X-Rays			50	50
Interpretation of CT/MRI/Ultrasound			25	25
Interpretation of haematology results			1000	1000
Interpretation of Biochemical results			1000	1000
Arterial blood gas analysis			30	30
Intraoperative monitoring			1000	1000
Positioning	5	10	20	35
Prescription writing			1000	1000
ICU care of patients		30		30

Note :

1) Each Candidate is expected to do a minimum of 40 hours of theatre/ clinical sessions per week throughout the 24 month Junior Residency period, taking into cognizance the period of annual leave.

2) A junior resident is expected to attend at least two (2) local or international conferences and the certificate of attendance should be submitted with the Log book before the Part I examination.

3) A junior resident must attain a minimum of 75% attendance at academic sessions. This must be duly signed up by the supervising consultant.

4) The junior resident must attend the update course in Principles and Practice of Anasesthesia, CPR and Practice Oral session of the Faculty

5) Other criteria for eligibility as set out by the College – Attend ATLS & ACLS courses.

3.7. EVALUATION

3.7.1. IN-COURSE ASSESSMENT

Each training institution should carry out constant evaluation of resident's performance during the course of training. Mandatory periods of rotations to other disciplines or institutions for experience in certain aspects of the discipline must be assessed and graded as satisfactory before they are signed up.

Each year, an annual report on the progress of each resident should be kept at the Training Institution for their records.

This formative evaluation or in-course assessment will have objectives as follows:

(a) To evaluate the degree of convergence of educational goals and residents' achievement.
(b) To provide a basis for feedback to residents in order to help them improve their knowledge and competence.
(c) To provide teachers and clinical supervisors with relevant information about the quality of their training.
(d) To serve as an effective tool for the maintenance of high quality health care for patients.

3.7.2. CERTIFYING EXAMINATION FOR THE PART 1 FELLOWSHIP

The Fellowship Examinations are held twice a year, March/April/May and September/October/November. A call for applications is published in at least one of the National

Daily Newspaper and on the College Website during the first week of December (for the March/April/May Examinations).orthe first week of June (for the September/October/November Examinations) and candidates are advised to watch out for, and comply with the requirements of the advertisements..Candidates are also advised to familiarize themselves with the College Examination Regulations on the College Website and study them for appropriate guidance.

3.7.2.1Entry Qualifications

To be eligible to sit for the Part I Examination, a candidate must:

(i). have passed the Primary Examination or have been exempted from it

(ii). have undergone training in clinical anaesthesia for not less than 24 uninterrupted calendar months in an accredited institution including a three months posting in clinical medicine& 2 weeks posting in Paediatric emergency &Neonatology. A duly signed Certificate of Training (Appendix VI) must be provided.

(iii). Candidates who have successfully completed a Diploma in AnaesthesiaProgramme may have the 12 months counted towards the Part I requirement (beside conditions already stated) on request to the Faculty Board.

(iv). Fulfill other criteria set by Faculty and College as applicable

3.7.2.2. Examination

The Examination consists of three parts namely:

(i) Written Papers:

(a) Paper I (CBT) – Multiple Choice Questions (MCQ), single best option, 1 in 4 (screening or Part 1 Stage 1(200 Questions, 3 hours). Those who are eligible from the MCQ screening examination will proceed to Part 1 Stage 2 examination which consist of:

(b) Papers II (Essay – 10 short answer questions) – Principles and Practice of Anaesthesia, Pain Medicine. (3 hours)

(c) Paper III (Essay -8 short answer questions) - Allied Specialties (Obstetrics and Gynaecology, Paediatrics, Medicine, Surgery), ICU, Instrumentation and Measurements (2 hours)

(ii) Objective Structured Clinical Examination (OSCE)/Long case/Picture Test – Which consists of:

OSCE 1- 5 STATIONS.
STATION 1- History Taking.
STATION 2- Physical Examination.
STATION 3- Follow up to STATION 2.
STATION 4- Physical Examination.
STATION 5- Follow up to STATION 4

OSCE 2- 10 STATIONS comprising of the following:
Communication skill
Technical skill
Interpretation and significance of Arterial blood gas results
Interpretation and significance of X-ray/CT/MRI
Equipment
Instrumentation/measurements
Interpretation and significance of laboratory results
Interpretation and significance of Electrocardiogram/Echocardiogram
Resuscitation skill
Airway Management

(iii) Oral examination: Oral I – Principles & Practice Anaesthesia, Pain, ICU and Oral II – Instrumentation, Measurement & Allied Specialties.

Distribution of the 200 MCQ for the screening examination is as follows

i. Applied Basic Sciences - 50 questions
ii. Principles and Practice of Anaesthesia, Pain Medicine – 60 questions
iii. Allied Specialties- Obstetrics and Gynaecology, Paediatrics, Medicine and Surgery – 35 questions.
iv. Instrumentation and Measurements. – 35 questions
v. Intensive Care – 20 questions

3.7.2.3. Pass mark for the examination: This will be determined using the principle of standard setting using the Modified Angoff method**.**

Marks for the Part 1 examination are considered in 3 parts viz:

1. Theory (written) Papers – 300 marks as follows:

a) Theory paperI (MCQ- 200) ` 100 marks
b) Theory Paper II (Principles and Practice of Anaesthesia, Pain Medicine (Essay-10 Short Answer Questions)- 120 marks
c) Theory Paper II (Allied Specialties of Medicine, Obs and Gynae, Paediatrics and Surgery, Equipment, measurements, ICU- Essay 8 Short Answer Questions)- 80 marks

2. Clinical examination (OSCE 1 100 marks, OSCE 2 100 marks) =200 marks
3. Oral examination to cover all sections of anaesthesia- 100 marks

For a candidate to pass the Part 1 Fellowship examination of the Faculty, he/she:

1) Must obtain an aggregate pass mark (C) in the clinical examination
2) Must obtain an aggregate pass mark (C) overall of the examination (at least 150 marks or 50%)
3) Must normally obtain a pass mark (C) in each section of the examination (i) written papers (ii) Clinical and (iii) Orals

Candidate will need to score 50% overall and pass the Clinical component of the examination and not fail more than two parts of the examination.

Chapter 4

SENIOR RESIDENCY TRAINING

4.0. ENTRY REQUIREMENT

On satisfactory completion of the initial two year period of the Junior Residency training and on passing the Part I Fellowship Examination, candidates are to be admitted to a recognized programme for further residency training for a minimum period of three years.

4.1. GENERAL EDUCATIONAL OBJECTIVES

This period must be spent in acquiring further knowledge in the subspecialties of Anaesthesia. During this phase of training, residents are expected to perform at a higher proficiency level than they did during their junior residency, to assume a greater degree of responsibility for decision making in patient care as well as cover a much

wider scope of anaesthetic practice and procedures, e.g. neonatology. By the end of the senior residency programme, each successful resident is expected to be able to perform effectively as a Consultant Anaesthetist. More opportunities are provided at this stage to enable each senior resident participate in teaching junior colleagues, nurses and medical students. He is also introduced to principles of health resource management in addition to problem solving skills as applied to research and anaesthetic practice.

4.2. FORMAT OF TRAINING

The Senior Residency training in Anaesthesia lasts a minimum of thirty-six months and in covers the following areas:

a)	Cardiothoracic anaesthesia	4 months
b)	Neurosurgical anaesthesia	4 months
c)	Paediatric (including neonatal) anaesthesia	4 months
d)	Obstetric Anaesthesia& Analgesia	4 months
e)	Anaesthesia for other surgical specialties- (General Surgery, Urology, Orthopaedics& Trauma Maxillo-facial, Plastic & Reconstructive, Ophthalmic, Otorhinolaryngology, Gynaecology)	6 months
f)	Intensive Care Medicine	4 months
g)	Specialty interest (Dissertation)	6 months
h)	Pain Medicine	4 months
i)	Research Methodology Workshop	0.25 months
j)	Health Resource Management	0.25 months

4.2.1. COGNITIVE SKILLS

Throughout the period of the Residency Programme, the Head of Department has the responsibility to expose the residents to a systematic schedule of didactic teaching covering the core knowledge pertinent to the practice of anaesthesia, so as to give them confidence and enable them to demonstrate good judgement in dealing with real problems.

This should be presented in form of seminars, tutorials and structured lectures, use of audio-visual aids, clinical case conferences, mortality and morbidity conferences, Information technology course, management course, teaching sessions, theatres and intensive care experience, journal reviews as well as research seminars. The Senior Resident must be updated from time to time on current opinions/research/practice of the specialty

The planned schedule should identify the scope of knowledge to be covered in cycles of 36 months and thereby provide opportunities for residents to cover the same ground at least twice; one as a junior resident and one as a senior resident.

4.2.2. PSYCHOMOTOR SKILLS

Each training institution should design its programme in such a way that the resident's acquisition of requisite anaesthetic skills spans over the 5year (Junior and Senior Programmes) period. The mastery of specific psychomotor skills of increasing degree of complexity, such as stated below should be emphasized.

(a) The handling and care of anaesthetic machines and auxiliary equipment, storage of gases, safety devices.

(b) The organization, disinfection and sterilization of auxiliary anaesthetic equipment appropriate for a particular technique of anaesthesia.

(c) The preparation and setting up of monitoring devices during anaesthesia and intensive care.
(d) The preparation and positioning of patients for regional techniques and particular operations.
(e) Participation in the prevention of explosion and fire in the operating room.

4.2.3. RESEARCH SKILLS

The head of department in the training institution should encourage residents to cultivate the habit of systematic clinical problem solving, featuring observation, interpretation, deductive reasoning, and decision-making followed by further observation. These are basic requirements for competence in research, either in the context of clinical problems or basic research projects.

Periodic departmental research seminars are recommended as the forum in which young researchers present their project for discussion, and receive the criticism and guidance of their teachers and peers.

4.2.4. COMMUNICATION SKILLS

It is important that Consultant Anaesthetists should be effective communicators not only in the ordinary run of clinical practice dealing with anxious patients, medical records documentation, or case presentation; but also in the context of scientific conference presentation, scientific journal publication, and indeed examination writing. Therefore training institutions must provide opportunities for the acquisition and testing of various levels of communication skills.

Computers have become important tools in all spheres of anaesthetic practice such as drug prescription, equipment for diagnosis and treatment, anaesthetic machine and others. Record keeping and auditing are also computer based. The knowledge of computer in anaesthesia is relevant in communication skill and should be stressed at this level. This should include literature search, use of internet, the use of statistical software, simulation and Microsoft Power Point for presentations.

CONTACT HOURS AND CREDIT POINTS FOR PART II FMCA : SENIOR RESIDENCY – 36 MONTHS

4.3.DURATIONS OF SPECIALTY ANAESTHESIA

In addition to the curriculum outline for the Junior Residency training programme, the Senior Residency Curriculum is advanced and further knowledge of the specialties in Anaesthesia, Pain Medicine and Intensive Care. Each of these subspecialties provides the basis for the Part 2 Dissertation.

Specialties	**Months**	**Contact academic hrs/wk (total hrs)**	**Theatre/ Clinical contact hrs/wk**	**Credit units**
ANE 931. Cardiothoracic anaesthesia	4	2 (32)	24 (384)	10
ANE 932. Neurosurgical anaesthesia	4	2 (32)	24 (384)	10
ANE 933. Paediatric (including neonatal) anaesthesia	4	2 (32)	24 (384)	10
ANE 934. Obstetric Anaesthesia& Analgesia	4	2 (32)	24 (384)	10
ANE 935. Anaesthesia for other surgical specialties- General Surgery, Urology, Orthopaedics& Trauma, Emergency, Maxillofacial, Plastic & Reconstructive Surgery, Ophthalmology and Otorhinolaryngology and Gynaecology.	6	2 (48)	24 (576)	16
ANE 936. Intensive Care Medicine	4	1 (16)	24 (384)	9
ANE 937. Specialty interest& PMC 999 (Dissertation)	6	1(24)	24 (576)	14
ANE 938. Pain Medicine	4	1 (16)	24 (384)	9
PMC 995 Research Methodology Workshop	0.25			6
PMC 996 Health Resource Management	0.25			6
Total	**36**			**100**

Contact Academic Hours:

(i) Routine Academic work – 2 hours
(ii) Research work - 1hourr
(iii) Health Resource Management - 1hour
(iv) Journal club - 1hour
(v) Morbidity and Mortality Review - 1 hour
(vi) Departmental seminars - 2hours

4.4(i)SKILLS TO BE ACQUIRED IN SENIOR RESIDENCY TRAINING

	SKILLS	NUMBER REQUIRED TO BE PERFORMED
1	Intubation- routine	300
	Intubation- nasal	13
	Intubation- awake	5
	Intubation- fibreoptic	5
	Use of supraglottic airway devices	30
	Difficult airway management	10
	Double lumen tube insertion	7
	Cricothyroidotomy	3
	Percutaneous tracheostomy	3
	Mini tracheostomy	3
2	Central venous cannulation	10
	Intra-arterial cannulation	10
	Intra-osseus cannulation	5
	Peripheral venous cut-down	3
3	Subarachnoid block	50
	Epidural block- lumbar	30
	Epidural block- thoracic	1
	Combined spinal-epidural block	20
	Caudal block	25
	Nerve blocks- brachial plexus, sciatic etc	10
	Intravenous regional anaesthesia	10
4	Hypotensive anaesthesia	5
	Total intravenous anaesthesia	5
	One lung ventilation	7
	Awkward positioning	25
	CVP monitoring	5
	Invasive blood pressure monitoring	5
	Cardiac echocardiography	Observed/participated
	Focused assessment for sonography (FAST)	Observed/participated

4.4(ii) SKILLS TO BE ACQUIRED IN SENIOR RESIDENCY TRAINING

	SKILLS	NUMBER REQUIRED TO BE PERFORMED
6	Chest tube insertion	1
7	Ultrasound-guided vascular access	2
	Ultrasound-guided nerve blocks	2
8	Critical care- initiation and weaning off ventilator	20
	Critical care- arterial blood gas analysis	37
	Critical care- sedation	12
	Critical care- use of inotropes, vasopressors, syringe drivers and volumetric pumps	12
	Critical care- cardiac output studies	Observed/participated
	Critical care- cardioversion/pacing	2
9	Patient stabilization and transfer	8
10	Advanced Trauma Life Support Course	Attend 1
	Cardiopulmonary resuscitation Course- adult/paediatric	Attend 1
	Neonatal resuscitation	13
11	Chronic pain management	5
12	Epidural analgesia	3

Note :

1) The candidate must be able to manage complex surgical cases as itemized in each module

2) Each Candidate is expected to do a minimum of 60 hours of theatre/ clinical sessions per week throughout the 24 month Senior Residency period, taking into cognizance the period of annual leave.

3) A Senior resident is expected to attend at least two (2) local or international conferences and the certificate of attendance should be submitted with the examination application form

4) A senior resident must attain a minimum of 75% attendance at academic sessions. This must be duly signed up by the supervising consultant.

5) A senior resident must show evidence of having attended all the following courses when applying for the Part II examination:

(a) Research Methodology
(b) Health Resource Management
(c) Manuscript Writing

6) The candidate must provide a certificate of Training from a recognized CPR training programme within the two years of Senior Residency Programme.

MD CURRICULUM IN ANAESTHESIA

In line with College philosophy, candidates who desire to do the MD during their senior residency training shall duly apply to the College to be admitted for the programme in any of the accredited institutions for the faculty of Anaesthesia. Such candidates are expected to submit a research proposal and after assessment and approval, will conduct the research and write the thesis within 2 years and present for defense of the thesis at least 6 months before the final Fellowship examination. Such candidates need not present another dissertation for the Fellowship but shall do the other components of the Part 2 Fellowship Examinations.
However, they are expected to attend online lectures/course work during their period of senior residency training, which will comprise of College and Faculty based courses; but the synopses of the courses are hereby presented.

The College based courses include:

MEDICAL EDUCATION PMC 994
This course is designed for medical and dental resident doctors. The need for doctors, involved with teaching in the medical school and postgraduate medical training to have training in teaching is widely recognised. The skills in Medical Education course has been designed to meet this need. The course is aimed at resident doctors who are new to teaching and at Fellows with years of experience who would like an update on current best practice and a greater understanding of the basic principles. The course recognises that, with appropriate help, all teachers, even those with considerable experience, can improve their skills in teaching.

The topics to be taught are, standard setting in educational assessment; assessment of clinical skills; threshold concepts in medical statistics and evidence-based practice; numeracy issues in learning about research; mapping and revising the learning and teaching of research; e-learning and blended in medical education; problem based learning; programmedevelopment; educational; computer communication networks; community-institutional relations; reproducibility of result; patient simulation; databases, factual; clinical decision making; selection of medical students.

ADVANCED RESEARCH METHODOLOGY PMC 995

OBJECTIVE
To facilitate acquisition of basic knowledge and necessary skills for research in Medicine and Proposal/Dissertation writing.

COURSE CONTENT
Definition, Spectrum and Types of Health Research Design; defining Research problems; Setting Objectives; Statistics and Research ;Methods; writing Research Proposals; (Planning, Protocol Development and Report Writing);Good Clinical Practices and Clinical Trials; Role of Computer in Medical Research (EPI Info and SPSS)
Literature review; Use of Physical and Virtual Library; Use of Internet; Search Engines; Systematic Reviews and Meta-analysis; Ethical considerations in medical research.

Clinical Governance; Writing –Up; presentation and Defense of Dissertation
Faculty Based Group Discussion on Research Proposal (Practical Group Session);
Evidence Based Health Care; Statistical Methods (Summary, Inferences and Interpretation); Basic Principles and Method of Writing Papers for Publications
Practical Sessions on Processing of Proposal and Presentation to the College.

ADVANCED HEALTH RESOURCES MANAGEMNT PMC 996

OBJECTIVE
To facilitate acquisition of knowledge and necessary skills required for management of health resources in institutions and for programme

COUREE CONTENT
Principles and application of Management; Strategic Management; Health Care Planning;Health Policy formulation and evaluation; Health Resources mobilization; Health Resources allocation; Human Resources Management; Organization; Monitoring and Evaluation of Health Services; Performance Management; Sustainable Development; Problem Solving and Decision Making skills; Emotional Intelligence; Leadership; Management of Change; Risk Management
Legal Aspect of Medical Practice; Financial Management; Material Resources Management; Quality assurance in health and equity in health; Public/Private Partnership;Case studies/Scenarios.

ASSESSMENT AND EXAMINATION METHODS PMC997

Multiple Choice Questions and Objective Tests; Oral Examinations; Patient Management Problems; The long clinical case; the objective structured long examination record' (OSLER), the short clinical case; objective structured clinical examination (OSCE); objective structured practical examination (OSPE); objective structured picture examination (OSPicE); workplace-based assessment; mini-CEX (mini-Clinical Evaluation Exercise); direct observation of procedural skill (DoPS) and Multi-source feedback (MSF); Simulated Patients; Observed Clinical Situations; Ensuring safe and effective patient care through training; Establishing and maintaining an environment for learning; Teaching and facilitating learning; Enhancing learning through assessment; Supporting and monitoring educational progress; Guiding personal and professional development; Continuing professional development as an educator; use of standardized patient (SP) encounters; Data gathering technique (history and physical examination); Interpersonal communication; Clinical management (diagnostic strategy and treatment plan); Professional documentation (post encounter note or PEN); Checklists; Patient Simulators.

The Faculty based courses include:

ANE 941- ADVANCED CARDIOTHORACIC ANAESTHESIA 2 CREDIT UNITS

This course aims to provide advanced knowledge in many important areas of Cardiac and Thoracic Anaesthesia.
It consistsof 30 lectures of one hour duration per lecture covering the following areas.
Myocardial oxygen supply and demand, Role of the Anaesthetist during management ofCardiopulmonary Bypass, Anaesthesia for acquired and congenital cardiac surgical conditions, (Coronary artery bypass grafts surgery, valves replacement surgery, pulmonary thromboembolectomy, Atrial septal defect, Ventricular septal defect, and PDA)Cardioversion, Anaesthesia for implantable defibrillators etc.
Isolation of the lungs, One-lung ventilation, AnaesthesiaforBronchoscopy, Lung surgery (wedge resection, lobectomy and pneumonectomy), thoracoscopy, video assisted thorocoscpy surgery, drainage of empyema and decortications, oesophagectomy, post- thoracotomy pain management, sternotomy.

Lecture Topics

Overview of the Cardiovascular system. Physiology of the Cardiovascular system. Overview of Anaesthesia for Cardiac diseases. Haemodynamic monitoring during Cardiac Surgery.

Anaesthetist and the managementof Cardiopulmonary bypass. Anaesthesia for Coronary bypass surgery. Anaesthesia for Valve heart disease. Anaesthesia for thromboembolectomy.

Anaestheisa/Sedation for Cardioversion. Anaesthesia for Pacemaker/implantable defibrillator placement. Anaesthesia for Acyanotic congenital heart disease. Anaesthesia for Cyanotic congenital heart disease. Perioperative support of the circulation. Myocardial protection during Cardiopulmonary bypass. Postoperative management of the cardiac patient. Anaesthesia for Aortic aneurysm repair. Overview of the Respiratory system-The lungs and the tracheobronchial tree. Overview of Anaesthesia for Thoracic diseases. Lung Isolation during surgery. Anaesthesia for Bronchoscopy. One lung ventilation. Lung surgery (wedge resection, lobectomy and pneumonectomy). Thoracoscopy and video assisted thoracoscopy.

Anaesthesia for mediastinal tumour resection. Anaesthesia for drainage of empyema and decortications. Anaesthesia for oesophagectomy. Anaesthesia for repair of Tracheoesophageal fistula. Fluid management during thoracic surgery. Perioperative pain management for thoracic surgery. Postoperative management after thoracic surgery.

ANE 942- ADVANCED NEUROSURGICAL ANAESTHESIA 2 CREDIT UNITS

The aim of this course is to provide important and concise knowledge in relevant areas of neuroanaesthesia.
It consists of 30 lectures of one hour duration per lecture covering the following areas.
Intracranial pressure monitoring, cerebral blood flow, Anaesthesiaforventriculo-peritoneal shunt, evacuation of traumatic intracranial haematoma, pituitary surgery, posterior fossa surgery, anaesthesia for intracranial vascular surgery, spinal surgery and interventional for radiology etc.
Lecture Schedule
Anatomy of the central nervous system. Physiology Of the central nervous system. Intracranial Pressure monitoring. Cerebral circulation. Airway management in neuroanaesthesia.

Anaesthesia forventriculo-peritoneal shunt. Anaesthesia for evacuation of traumatic intracranial haematoma. Anaesthesia for depressed sull fracture. Anaesthesia for pituitary surgery.

Anaesthesia for posterior fossa surgery. Anaesthesia for intracranial vascular surgery. Anaesthesia for spinal tumour. Anaesthesia for spine reconstruction surgery. Anaesthesia for awake craniotomy. TIVA in neuroanaesthesia. Anaesthetic challenges during paediatric cranio-facial surgery. Anaesthesia for neurosurgical Interventional radiology. Anaesthetic considerations of Prone position. Post-operative care of the neurosurgical patient. Post-operative pain management in neurosurgical anaesthesia. Guidelines for blood transfusion in neurosurgical anaesthesia. Fluid management during craniotomy. Fluid management during spine surgery. Monitoring evoked potentials. Invasive monitoring in Neurosurgery.

Neurosurgical ICU. Risk assessment in the neurosurgical patient. Perioperative complications during neurosurgery. Neuroprotection in the neurosurgical patients. VTE prevention for neurosurgical patients

ANE 943- ADVANCED PAEDIATRIC ANAESTHESIA 2 CREDIT UNITS

This course will teach Neonatal and infant physiologies in relation to anaesthesia, paediatricanaesthetic equipment, conduct of anaesthesia in children, pain assessment tools and post operative pain relief, caudal/epidural/subarachnoid block, procedural sedation.
Anaesthesia for: diaphragmatic hernia, gastrochisis, trachea-oesophageal fistula, patent ductus arteriosus, Pyloric stenosis, intussusception, large ontra abdominal tumours, ano-rectal malformations, herniotomy, circumcision, orchidopexy, hypospadias, laparoscopic procedures, cleft lip and palate, tonsillectomy, congenital talipes equinovarus, femoral osteotomy. Anaesthesia in presence of medical diseases in children and congenital heart diseases. Paediatric advanced life support & neonatal resuscitation.

Lecture Topics

Paediatric Physiology & Anatomy. Neonatal/Infant Anatomy and Physiology. Temperature Control. Fluid & electrolyte balance in children. Paediatric anaesthetic equipment.

Conduct of anaesthesia in paediatrics. Regional techniques – caudal. Regional techniques - epidural/subarachnoid block. Pain Assessment tools in children. Post-operative pain Relief. Procedural sedation and Analgesia (PSA) in children. **Anaesthesia for:** Airway obstruction including foreign body removal. Preterm babies. Gastrochisis/ Omphalocoele/ diaphragmatic hernia. Trachea-oesophageal fistula. Ligation of Patent ductus arteriosus. Pyloric stenosis &Intussuception. Tonsillectomy & post tonsillectomy bleeding.
Ano-rectal malformations. Large Intra-abdominal tumours. Anaesthesia for day case procedures. Hypospadias. Cleft lip and palate. Congenital talipes equinovarus& femoral osteotomy. Meningomyelocoele. Separation of conjoined twins. Laparoscopic procedures. Anaesthesia in presence of medical diseases in children. Analgesia in a child with Congenital Heart disease. Paediatric ALS & Neonatal resuscitation

ANE 944- ADVANCED OBSTETRIC ANAESTHESIA AND ANALGESIA 2 CREDIT UNITS

The course will focus on Physiology of pregnancy as its affect anaesthesia, labour analgesia (systemic, regional, epidural, inhalational), acid aspiration prophylaxis, anaesthesias for caesarean section (GA, spinal, epidural, combined spinal epidural), postoperative analgesia

Anaesthesia for high risk obstetrics (obstetrics haemorrhage, foetal distress, cardiac diseases in pregnancy, preeclampsia and eclampsia, sickle cell disease, placental praviae and obruptio placentae) and Anaesthesia for retained placenta.

Lecture Topics:

Physiology Of Pregnancy And Problems Of And Anaesthetic Implications. History of Obstetric Anaesthesia,Physiology Of Labour And Delivery. Anatomy Of The Spine And Peripheral Nerves.Kyphoscoliosis,Achondroplasia. Preoperative Review,Premedication/Acid Aspiration Prophylaxis. Relief Of Labour Pain By Systemic Medication/Regional Techniques. General Anaesthesia For Caesarean Section And Complications. Epidural Anaesthesia For Caesarean Section/Spinal Anaesthesia For Caesarean Section,Combined Spinal/Epidural anaesthesia,Complications,Eve(Epidural Volume Extension),Low Volume Spinal Epidural Extension. Failed And Difficult Intubation ,Failed Intubation Drill. SEPSIS.

Post Caesarean Section Pain Management(Multimodal Concept). Incidence And Risk Factors For Chronic Pain After Caesarean Delivery. Anaesthesia For High Risk Obstetrics 1 (Postpartum Haemorrhage,Major Obstetric Haemorrhage /Placenta Praevia/DIC. Anaesthesia For High Risk Obstetrics -2(Cardiac Diseases In Pregnancy, Valvular Heart Diseases,Cardiomyopathy/ HIV Infection. Haemostatic Disorders In Pregnancy(Anaemia,Sicle Cell Disease,Thrombocytopaenia Von Willebrand's Disease,Haemophilia.

Anaesthesia For High Risk Obstetrics -3(Pre-Eclampsia/Eclampsia-HELLP Syndrome/COVID-19. Anesthesia For Surgery During Pregnancy /Magnesium And The Anaesthetist.

Acid Aspiration Syndrome/Acute Renal Failure. Metabolic disorders(Diabetes Mellitus/Gestational Diabetes),Obesity in Obstetrics. Endocrine diseases in Pregnancy - hyperparathyroidism, hyperythyroidism, Phaeochromocytoma. Anaesthesiafor Obstetric Emergencies. Maternal Morbidity And Mortality. Intensive Care In Pregnancy.

Maternal Cardiopulmonary Resuscitation. Local Anaesthetic Pharmacology/ Toxicity And Management. Follow-Up.Postdural Puncture Headache(PDPH), Epidural Blood Patch,Transient Neurologic Syndrome(TNS). Amniotic Fluid Embolism. Blood Transfusion In Obstetrics. Psychiatric Disease,Epilepsy. Trauma In Pregnancy. Setting Up An Obstetric Analgesia Service. Maternal Morbidity And Mortality.

NEONATE

a)EffectsOf Maternally Administered/Anesthetics And Analgesics OnNeonates/Neonatal Assessment
b)Neonatal Physiology And Pharmacology/Uteroplacental Blood Flow
c)Foetal Monitoring/ Neurobehavioral Testing
d) Neonatal Resuscitation
e) Perinatal Mortality

ANE 945- ADVANCED CRITICAL CARE MEDICINE- 2 CREDIT UNITS

The course will focus on Advanced principles of managing critically ill medical patients - Shock (septic, cardiogenic, neurogenic, hypovolaemicetc), cardiac arrhythmias, hypertensive emergencies, respiratory failure, upper airway obstructions, pulmonary embolism, acid-base balance, renal failure, comas, haematologic and gastrointestinal disorders, head injury, polytrauma, high postoperative care.

Mechanical ventilation, invasive monitoring, arterial blood gas analysis, pulmonary function tests and nutrition in the critically ill

Lecture Topics:

Advanced principles of managing critically ill medical patients. Sepsis 1, Sepsis 2. Shock (septic, cardiogenic, neurogenic, hypovolaemicetc). Oxygen therapy. Cardiac arrhythmias and ECG interpretation. Hypertensive emergencies, strokes, etc. Emerging Pandemic Infections – SARS, COVID-19. Respiratory failure. Ethical issues in ICU-autonomy, beneficence, non-maleficence and justice. Upper airway obstruction. Pulmonarythrombo-embolic disease: Air, Fat and amniotic fluid embolism. Acid-base balance and its interpretation. Fluid therapy in ICU. AKI and Chronic Renal failure. Comas. Poisoning: CO, Organophosphorous. Gastrointestinal disorders. The Head-injured Patient. Sedation in ICU. Mechanical Ventilation- 1. Mechanical Ventilation -2. Non-invasive Ventilation. Invasive monitoring- 1. Burns and inhalational injuries. Arterial blood gases and interpretation. Nutrition in the critically ill. Basic principles of communication in ICU. Brain Death. Infection Control in critical care

ANE 946- ADVANCED PRINCIPLES OF PAIN MANAGEMENT 2 CREDIT UNITS

Anatomy and physiology of pain pathway, Acute and chronic pain, neuropathic pain, chronic pain syndromes, pain asssesement and tools for assessment, management of acute and chronispain(systemic analgesic, regional, interventional pain therapy), WHO analgesic ladder.

Learning outcome

- To build on the competencies achieved at the Registrar Level

Core clinical learning outcomes

- Fully competent in the assessment and management of acute surgical, acute non-surgicaland acute on chronic pain in all patients and in all circumstances
- To have knowledge and skills in the management of chronic and cancer pain
- To be an effective member of a multi-professional pain management service

Course outline:

Introduction to Pain. Mechanisms of Pain. Principles of Neural blockade in acute and chronic pain. Pain assessments and tools - Paediatric pain assessment and tools, Adult pain assessment and tools, Pain assessment in patients with disability and incapacity. WHO Analgesic ladder. Management of acute pain 1 – Pharmacologic and non-pharmacologic methods. Management of acute pain 2- Place of Surgery in the management of Pain. Principles of Cancer Pain management- 1. Principles of Cancer Pain management- 2. Principles of Chronic Pain Management. Addiction and Dependence. Interventional pain management including epidural steroid, lumbar facet, peripheral nerve blocks, intercostal nerve blocks-1

Interventional pain management including epidural steroid, lumbar facet, peripheral nerve blocks, intercostal nerve blocks-2. Interventional pain management including epidural steroid, lumbar facet, peripheral nerve blocks, intercostal nerve blocks-3. Treatment of Pain in children including children with medical illnesses-1. Treatment of Pain in children including children with medical illnesses-WHO guidelines. Pain in special situations- Elderly, HbSSand patients having problems communicating. Pain in HIV/AIDS. Psychological mechanisms in Pain and techniques for their management including cognitivebehavioural approaches-1. Psychological mechanisms in Pain and techniques for their management including cognitivebehavioural approaches-2. Physical therapies used in treating Pain including the TENS machine. Ethical issues in Pain Medicine- 1. Ethical issues in Pain Medicine- 2. Social services, rehabilitation and other support services/Palliative Care. Systemic analgesics including adjuvants and co-adjuvants. The Multi-disciplinary Pain Clinic-1. The Multi-disciplinary Pain Clinic-2. Acute Pain Services. Pain management in Low resource settings-1. Pain management in Low resource settings-2

A candidate who enrolls for the MD programmeis expected to choose any of the above specialty areas in Anaesthesia to focus on for his/her project, and will attend online lectures in the chosen field, as well as the College based courses. He/She is also expected to submit a proposal for the chosen research topic and obtain approval after satisfactory assessment, carry out the study and write a thesis/dissertation and present for Exam/ defense of the dissertation at least 6 months before the final Part II Fellowship Examination. The dissertation component of the Part II Exams will be waived for such a candidate in the final Part II Exams.

4.5. GUIDELINES FOR RESEARCH PROPOSAL AND DISSERTATION FORMATS

4.5.1. PART II (FINAL) FELLOWSHIP EXAMINATION

On satisfactory completion of the three year period of residency training in an accredited institution, candidates may present themselves for the Part II (Final) Examination which shall consist of

(i) Oral Examinations of a highly professional nature, as well as

(ii) The defence of a Dissertation

The candidate shall be required to upload the Dissertation on the College Portal for the purpose of assessment for the Part 2 (Final) Fellowship Examination.

(iii) Proposal must have been approved and the study carried out in the approved format.

4.5.2. GUIDELINES FOR RESEARCH PROPOSAL

4.5.2.1 PROPOSAL

A proposal for research study must be submitted at least 18 months before the expected date of examination having passed through the Ethics Committee of the training institution.

The proposal must be signed by two (2) supervisors, one of which must be a Fellow of NPMCN of at least 5 years standing.

This involves the FORMATIVE STAGE which involves developing A RESEARCH PROPOSAL and THE FINAL DISSERTATION. Guidelines are needed for uniformity in the presentations of Research Proposals and Dissertation.

The objective of the Dissertation in the Fellowship Programme is, among others, to give the candidate a chance to study a subject of his choice in reasonable depth. It is essential that the candidate contributes to body of knowledge in subject area of study and where possible break new ground; the research performed to answer a research question(s) or support a hypothesis(es) must be both original and make substantial contributions to the existing body of knowledge, highlighting original contributions. In the process of developing a dissertation,the resident is introduced to the process of carrying out a research project and / or making observations and documenting same in clear well written scientific language (understandable English); made to contribute to solving a health problem.

4.5.2.2. PROPOSAL GUIDELINES

The purposes of the research (dissertation) proposal are to:

i. identify the research problem,

ii. survey and evaluate the relevant literature, and

iii. describe the plan for conducting the research

An acceptable proposal must conform to the following format:

1. Title Page:

i. Proposed Title of the project – brief, descriptive and specific.

ii. Name of the Candidate (*with the surname first, in capital letters*)

iii. Faculty of Candidate

iv. Name and address of Training Institution

v. Name(s) and address(es) of Supervisor(s)

vi. Date Part I was passed

vii. Proposed Examination date

Items i-vii above are self-explanatory.

The proposal should be formatted as follows;

(i) Title Page
(ii) Certification page signed by the supervisors
(iii) Table of Contents
(iv) List of Abbreviations
(v) Introduction – 800 words
(vi) Aims & Objectives – 150 words
(vii) Review of Literature – 2500 words
(viii) Justification of the study – 250 words
(ix) Proposed Methodology – 2000 words
(ix) References – in Vancouver style. (30-40)

The proposal must be accompanied by a certification signed by the HOD in the training institution stating thus:
'I hereby certify that this proposal titled …….has been presented by the researcher at a departmental academic meeting'

NOTE: ALL SIGNED PAGES AND ETHICAL CLEARANCE CERTIFICATE MUST BE SCANNED AND INCLUDED IN THE PROPOSAL

2. Introduction (*not more than 800 words*), including definition of the research problem and justification. The introduction should be short and well-focused; with health problem, research question and /or hypothesis (es) clearly stated.
3. Aim(s) and objectives of the study section comprising:
i. **Aim(s):** The aim(s)should clearly address the overall objective(s) of the study (it is like **an expanded title**).
ii. **Specific Objectives:** The specific objectives outline the **measurableoutcomevariables**.
This need for clearly stated Aim and Specific Objectives is the basis of the acronym NONE – no objective, no evaluation.
4. Literature review (*not more than 2500 words*), including relevant African literature. The literature review should be comprehensive; and should highlight the citations that are relevant to the topic.
The cited literatures form the basis for defining the health issues, the hypothesis and research questions.
5. Proposed Methodology (*not more than 2000 words*). This provides relevant information on:
i. The study locations,
ii. Study population: human subjects with clear definition of human subjects, inclusion and exclusion criteria,
iii. Study design, which encompasses type, duration, sampling and sample size determination,
iv. Ethical considerations, including Institutional Ethical Approval and Informed Consent Form (attached to the proposal),
v. Procedure, which include materials, methods, patient preparation, etc.
vi. Limitations of the study
vii. Relevant and specific methods of data analysis.
The proposed methodology should give enough information for others to be able to replicate the study; it should be clear – not assuming that only the specialist in the field of study will read it.

6. References in the Vancouver style (*30-40*).

7**. Signature Page (Application supported by):**
A statement page indicating Departmental Presentation at least a Seminar and approval with dates should be attached. This must be duly signed by:

a. Head of Department (Name, Signature and Date)

b.TheSupervisor(s), one of whom must be a fellow of the Faculty; of at least five years post Fellowship *(if more than one supervisor*)
(Name/Address, Year of Fellowship, Signature and Date)

c. Departmental Residency Training Coordinator (Name, Signature and Date)

d. Candidate (Name, Signature and Date)

4.5.2.3. PAGE FORMAT AND LAYOUT OF THE PROPOSAL
Guidelines on the page format and layout include:
i. Font: Size 11 or 12 of *Times New Roman.*
ii. Margins: At least 1" right, left, top and bottom.
iii. Spacing: Double line spacing.
iv. Page Arrangement: Each of the major sections of Title page, Introduction, Literature Review, Aim and Objectives of the Study, Proposed Methodology, List of References and each Appendix should begin on a new page.
iv. Numbering of Pages: Numbering of Pages: Pages are numbered in Arabic numerals (1, 2, 3, etc.). Page 1 should begin with the title page with page numbers placed at the centre and bottom of the pages.
v. Tables and Illustrations: Tables are numbered in capital Roman numerals (I, II, III, etc.) with caption of the Table on top, while Illustrations are numbered in Arabic numerals (1, 2, 3, etc.) with caption below the Illustrations.

4.6. GUIDELINES FOR DISSERTATION FORMAT

4.6.1. OBJECTIVE FOR THE DISSERTATION PROJECT

The goal of the dissertation exercise is to enable the resident acquire skills for research. Through his dissertation, each trainee is expected to demonstrate his ability:

(a) To clearly define the subject chosen for the study (the subject should be clinical or have specialty related clinical application
(b) To define the scope of the study bearing in mind the resources available, thereby avoiding the dangers of unwarranted conclusion
(c) To define the objectives of the study in precise and clear term that leaves no doubts as feasibility
(d) To critically review, not merely cite references from available literature on the subject of study
(e) To handle the materials and the method of the study in such a way as to obtain results that are relevant to the stated objectives of the study.
(f) To analyze the results and draw logical conclusion from them and finally, discuss his/her findings in relation to existing body of knowledge on the subject.

The dissertation must follow the approved proposal. The dissertation will be rejected if it does not follow the approved proposal. Collection of data for the dissertation must be within the time frame stipulated in the ethical clearance certificate. Where there is delay in the final approval of the proposal, the candidate must update the ethical clearance certificate in the training institution to reflect a new time frame for collection of data. Any change(s) in the approved proposal must be formally communicated to the College and Faculty with updated ethical clearance certificate from the training institution.Both original and updated ethical clearance certificates must be uploaded on the candidate's proposal and dissertation on the College e-portal.

An acceptable dissertation must conform to the following format:

a. Title Page:

i. Title of the project

ii. Statement of Purpose: *This dissertation is submitted to the National Postgraduate Medical College of Nigeria in part fulfilment of the requirements for the award of the Fellowship of the College in Paediatrics or Internal Medicine, etc*".

iii. Name and Qualification of the Candidate

iv. Date of Examination.

b. Declaration Page

The Candidate must affirm the originality of the work and that it has not been previously submitted or published elsewhere thus: *It is hereby declared that this work is original unless otherwise acknowledged. The work has not been presented to any other College for a Fellowship Examination, nor has it been published or submitted elsewhere for publication.*

c. Certification Page

i. SUPERVISORS: The supervisor(s) must sign the following statement.

"The study reported in this dissertation was done by the candidate under my/our supervision. I/We have also supervised the writing of the dissertation".

Signature:…….

Name of Supervisor:…….

Status of Supervisor:……

Year of Qualification:……

Date:……...

(Photocopies of signed certification are not acceptable)

d. Attestation by the Head of Department thus: This dissertation titled ……(Title of Dissertation)……by …..(Name of Candidate) was presented at a Departmental Academic Seminar

Signature of HOD:…… Date: …….

e. Table of Contents Page

f. Attestation by the Chief Medical Director or the Chairman Medical Advisory Committee

g. Dedication Page

h. Acknowledgements Page

i. List of abbreviations

j. Summary Page

NOTE: ALL SIGNATURE PAGESAND ETHICAL CLEARANCE CERTIFICATE MUST BE SCANNED AND INCLUDED IN THE DISSERTATION.

i. The **Summary** is the beginning of the dissertation proper. It starts as the page 1 of the dissertation.

ii. The summary should be structured and should not be more than 500 words.

iii. It should be a synopsis containing the:

- Background(including the objectives of the study)
- Methodology
- Results
- Conclusions.

iv. Every statement in the summary must be from what is available in the body of the dissertation.

h. Introduction

This section should briefly define the subject matter (problem), identify the research questions and justify the need for the study.

i. Literature Review

The literature review should be an analytic (critical) appraisal of previous works/reports on the subject. It lists the component areas of the previous relevant studies on the subject. It should be comprehensive but not unduly lengthy.

j. Aims and Specific Objectives of the Study

The Aim should address the overall objective of the study, while Specific Objectives should outline the measurable outcomes variables. These should not differ *significantly* from that in the approved proposal.

k. Methodology

Details must be given here of:

1. The study locations,
2. Study population: human subjects with clear definition of human subjects, inclusion and exclusion criteria,
3. Study design, which encompasses type, duration, sampling and sample size determination,
4. Ethical considerations, including Institutional Ethical Approval and Informed Consent Form,
5. Procedure, which include materials, methods, patient preparation, etc.
6. Limitations of the study
7. Relevant and specific methods of data analysis.

8. Others.

The nature of the candidate's participation in the execution of the research should be stated and acknowledgements given in respect of the contributions of others. This is primarily a research project of the candidate. The notion of Principal investigator and co-investigator(s) should be avoided.

l. Results

- The period of the study should be stated. (*This starts from the date of submission of Research Proposal to the College to the date of data collection and approval by the supervisor(s). However, data collection cannot start until final approval of the proposal by the College).*

- Results should be presented simply but succinctly using a combination of prose, tables, charts and figures as appropriate; and

- The presentation should be systematically done, to address each of the specific objectives.

m. Discussion

- The discussion should focus on the interpretation of the results of the study;

- Generalisations not borne out of the study findings should be avoided;

- Findings should be compared with previous reports and reasons proffered for observed differences; and

- The implications of the findings should also be discussed.

n. Conclusions

This is best presented as itemized points in simple, unambiguous prose.

o. Recommendations

Recommendations [may be] made but must be defensible from the findings of the study

p. Limitations (if any)

q. Lines of future research

Lines of future research may be suggested**.**

r. References

References should comply with the Vancouver style, as used by the Journal of the National Postgraduate Medical College of Nigeria.

s. Appendices

The following should be presented as appendices; numbered and arranged in the order they are first mentioned:

- The study questionnaire or proforma,

- Certificate of Institutional Ethical Clearance,

- Informed Consent Form,

- Other relevant information that do not strictly belong to the text.

PAGE FORMAT AND LAYOUT OF THE DISSERTATION

Just as for proposal, the discussion on the formats of dissertation is incomplete without guidelines on the layout of the pages

i. **Font:** Size 12 of *Times New Roman.*

ii. Margins: At least 1" right, left, top and bottom.

iii. Spacing: Double line spacing.

iv. Page Arrangement: Each of the major sections of Summary, Introduction, Literature Review, Aim and Objectives of the Study, Subjects (Materials) and Methods, Results, Discussion, Conclusions, Recommendations, the List of References and each Appendix should begin on a new page.

iv. Numbering of Pages: Pages are numbered in Arabic numerals (1, 2, 3, etc.). Page 1 should begin with the summary with page number place at the centre and bottom of the pages.

v. Tables and Illustrations: Tables are numbered in capital Roman numerals (I, II, III, etc.) with caption of the Table on top, while Illustrations are numbered in Arabic numerals (1, 2, 3, etc.) with caption below the Illustrations.

vi. Oversize Pages or Plates: These should be folded and attached last.

viii. The number of copies required: Four (4) copies, spiral bound should be submitted.

4.6.2. CONDITION FOR A PASS

(a) A full pass requires a clear pass in both sections of the examination (Dissertation and Oral).

(b) A well-written dissertation on a relevant subject(s) with a successful defense on the chosen subject matter. Minor corrections can be recommended without necessarily failing, this could earn the candidate, a Provisional Pass (P-) provided that the candidate passes the other aspects of the examination. The correction must be reassessed by a nominated assessor and accepted within 3 months before the provisional pass is converted to a full pass.

(c) Fundamental and major errors would earn the candidate a Referral and such candidates must represent themselves for examination on the book provided that the candidate passes other aspects of the examination.

(d) A candidate who has his/her sdissertation accepted but fails the viva voce shall be referred in the Orals only against the next examination.

The Fellowship of the Medical College in Anaesthesia(FMCA) shall be awarded to candidates who have fulfilled all the requirements stated above and passed the Part II Fellowship Examination.

APPENDIX I

FACULTY OF ANAESTHESIA

CRITERIA FOR THE ACCREDITATION OF TEACHING/ SPECIALIST HOSPITALS AND FEDERAL MEDICAL CENTRES AS TRAINING CENTRES FOR THE FELLOWSHIP IN ANAESTHESIA

The Fellowship training is aimed at producing Specialists in Anaesthesia of a high degree of competence, comparable in the extent and depth of the training of Fellows in other parts of the world. Such Specialists should have a firm grasp of the Scientific basis of modern anaesthesia, be skilled in the performance of anaesthetic duties and be conversant with research methodology and the interpretation of research data. The provision of facilities for this level of training must be based on the objective of the training and should cover the main areas of modern anaesthetic practice.

(a) Clinical Anaaesthesia
Pre-Operative Care
Intra-Operative Care
Post-Operative Care
(b) Resuscitation

(c) Intensive Care
(d) Pain Medicine

As much as possible, adequate facilities should be available in all these areas to give the candidate enough practice both in quantity, quality and variety.

Related disciplines and ancillary facilities for investigation must also be available. These include departments of Internal Medicine, Paediatrics, Surgery, Obstetrics &Gynaecology, Pathology, Radiology, and Medical Records. Details of their equipment in all areas are given below:

(i) An Institution for Postgraduate Training in anaesthesia must have a Department of Anaesthesia run by specialist Anaesthetists who are themselves Fellows of the National Postgraduate Medical College of Nigeria or are Fellows of other recognized Colleges or have equivalent qualifications. A minimum of two Fellows supported by residents in training would be required as a basic teaching unit.

(ii) As many branches of surgery as possible should be available in the hospital. These include General Surgery, Obstetrics &Gynaecology, Urology, Ophthalmology, E.N.T. Surgery, Orthopaedic and Trauma Surgery, Dental Surgery, Paediatrics and Plastic Surgery. While it is desirable to have a neurosurgical unit and a Cardio-thoracic Unit, it is not mandatory for basic specialist training.

(iii) There must be an out-patient complex with Emergency Rooms and Facilities for resuscitation, as well as out-patient theatre(s) for minor surgery and casualty.

(iv) Laboratories – The hospital must also have facilities for investigation in
(a) Chemical Pathology
(b) Microbiology for routine and special investigations, and emergency
(c) Haematology and Blood Bank.

(v) There should be an Intensive Care Unit for the management of critically ill or traumatised patients.

(vi) There should be a Departmental laboratory for research.

(vii) There must be a suitable number of operating theatres to give the various specialties of surgery adequate operating time. Each theatre should have an anaesthetic room attached to it and should be fully equipped with anaesthetic, monitoring and resuscitation equipments. It is vital that there should be a recovery room to take a minimum, of two to four beds depending on the number of theatres.

(viii) The Radiology Department must be capable to doing routine – X-rays and other sophisticated investigations (CT, MRI, contrast studies, Ultrasound, Doppler) which may be required by existing specialties and such facilities should extend to theatre and ICU.

(ix) There must be a good library with current Anaesthetic Journals and books in Anaesthesia and related subjects.

(x) Other departments viz: Medicine, Paediatrics, Surgery, Obstetrics &Gynaecology and Psychiatry must be suitably well developed to give the residents in training some experience in these disciplines.

(xi) There must be a suitable number of Anaesthetic and Monitoring equipment in all areas of Anaesthetic service. In addition to service equipment, there should also be equipment for teaching and research including teaching aids, models, audio-tapes, computers, CD Room, etc.

The number of beds in the hospital as well as the total volume of work and the number of consultants will determine the maximum number of postgraduate trainees which can be handled by the department at any one time. The object of the exercise is to ensure that each resident does a minimum of 500 general anaesthetics and regionals yearly. Where all surgical disciplines are not available, a modified accreditation may be given to the institution requiring that the trainees be sent to other hospitals for varying periods of time as stipulated in the Residency Training Programme in Anaesthesia Hand Book to make up for the deficit.

A check list for visiting teams is attached herewith as an Appendix.

APPENDIX II

NATIONAL POSTGRADUATE MEDICAL COLLEGE OF NIGERIA FACULTY OF ANAESTHESIA
APPRAISAL OF DEPARTMENTS OF ANAESTHESIA FOR POSTGRADUATE PROFESSIONAL TRAINING
CHECK-LIST FOR THE VISITATION PANEL

Members of the visitation panel would like to inspect facilities available in the hospital for anaesthetic service and training. These include:

1. **Departmental Set-up**
   (a) Office for Staff
   (b) Seminar Room(s)
   © Teaching Aids for Postgraduate Training – TV, Video, Computer, CD Rom, , Mannikins, Simulators, Laptop Multimedia, TEAL etc.
   (d) Departmental Library.
   Text books, Journals – Anaesthesia BJA CJA AJAIC, Anesthesiology Internet access etc.
2. **Accident/Emergency.**
   (a) Emergency Rooms and Facilities for Resuscitation
   (b) Out-Patient Theatre(s) including Recovery Area
   © X-ray Facilities

3. **Surgical Wards** – including all surgical specialties

4. **Gynaecological Wards**

5. **Obstetric Wards**

6. **Labour Ward/Theatre**
   Wards must be equipped with resuscitation facilities.

7. **Special Care Baby Unit (SCBU) –** Resuscitation Equipment Resuscitaire, Incubators

8. **Laboratories**
   (a) Chemical Pathology
   (b) Microbiology
   (c) Haematology
   (d) Blood Bank
9. **Intensive Care Unit/HDU**

10. **Departmental Laboratory – PCV, Hb, ABG**

11. **Hospital Medical Health Records**

12. **Pharmacy**

13. **Radiology**

14. **Main operating theatres/recovery areas**

15. **Meetings with Consultants/Residents**

16. **Meeting with the head of the hospital**

All wards, theatres and Radiology Department must be equipped with facilities for resuscitation.

APPENDIX III

AWARDS AND PRIZES

(a) Dorothy Jane O. fFoulkes-Crabbe Prize goes to the best overall pass in the Paper I (Principles & Practice of Anaesthesia) of the Part I examination and at first attempt.
(b) Christopher Ekundayo Famewo Prize goes to the candidate with the best overall pass in all aspects of the Part I Examination and passes at first attempt.
(c) Samuel A. Oduntan Prize goes to the best overall pass in the Part II Examination and pass at first attempt.
(d) Emmanuel Uduaghan Prize goes to the Best Overall graduating candidate.
(e) Olusola Temitayo Kushimo Prize goes to the candidate with the Best Part II dissertation in PaediatricAnaesthesia