



MD Paediatrics

Curriculum and Syllabus 2011

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MD PAEDIATRICS

1.A. Goals

The goal of Post graduation (MD) course in Paediatrics is to produce a competent paediatrician who:

- ❖ Recognizes the health needs of neonates, infants, children and adolescents and carries out professional obligations in keeping with principles of National Health Policy and professional ethics;
- ❖ Has acquired the competencies pertaining to paediatrics that are required to be practiced in the community and at all levels of health care system;
- ❖ Has acquired skills in effectively communicating with the child, family and the community;
- ❖ Is aware of the contemporary advances and developments in medical sciences as related to child health;
- ❖ Is oriented to principles of research methodology; and
- ❖ Has acquired skills in educating medical and paramedical professionals.

B. Objectives

At the end of the MD course in Paediatrics, the student should be able to :

- ❖ Recognize the key importance of child health in the context of the health priority of the country;
- ❖ Practice the specialty of Paediatrics in keeping with the principles of professional ethics;
- ❖ Identify social, economic, environmental, biological and emotional determinants of child and adolescent health, and institute diagnostic, therapeutic, rehabilitative, preventive and promotive measures to provide holistic care to children;

- ❖ Recognize the importance of growth, nutrition and development as the foundation of Paediatrics; and help each child realize her/his optimal potential in this regard;
- ❖ Take detailed history, perform complete physical examination including neurodevelopment and behavioral assessment and anthropometric measurements of the child and make clinical diagnosis;
- ❖ Perform relevant investigative and therapeutic procedures for the paediatric patient;
- ❖ Interpret important imaging and laboratory results;
- ❖ Diagnose illness in children based on the analysis of history, physical examination and investigative work up;
- ❖ Plan and deliver comprehensive treatment for illness in children using principles of rational drug therapy;
- ❖ Plan and advise measures for the prevention of childhood disease and disability.
- ❖ Plan rehabilitation of children suffering from chronic illness and handicap, and those with special needs;
- ❖ Manage childhood emergencies efficiently;
- ❖ Provide comprehensive care to normal, 'at risk' and sick neonates;
- ❖ Demonstrate skills in documentation of case details, and of morbidity and mortality data relevant to the assigned situation;
- ❖ Recognize the emotional and behavioral characteristics of children, and keep these fundamental attributes in focus while dealing with them;
- ❖ Demonstrate empathy and humane approach towards patients and their families and respect cultural needs.
- ❖ Demonstrate communication skills of a high order in explaining management and prognosis, providing counseling and giving health education messages to patients, families and communities;

- ❖ Develop skills as a self-directed learner, recognize continuing educational needs; use appropriate learning resources, and critically analyze relevant published literature in order to practice evidence-based paediatrics;
- ❖ Demonstrate competence in basic concepts of research methodology and epidemiology;
- ❖ Facilitate learning of medical/nursing students, practicing physicians, paramedical health workers and other providers as a teacher-trainer;
- ❖ Play the assigned role in the implementation of national health programs, effectively and responsibly;
- ❖ Organize and supervise the desired managerial and leadership skills;
- ❖ Function as a productive member of a team engaged in health care, research and education.

2. Course Overview

Duration of the Course

The period of certified study and training for the Post-Graduate MD PAEDIATRICS shall be Three Academic years.(six academic terms). The academic terms shall mean six months training period.

Commencement of Academic Session

The academic session for the Post-Graduate shall commence from May 2nd of the Academic Year.

Date of Examination

The students admitted up to May 31st of the academic year shall be registered for that academic year and shall take up their Final Third Year regular examination in April of the due year and October of the academic year after completion of 3 years.

Number of Examinations

The University shall conduct not more than two examinations in a year, for any subject, with an interval of not less than 4 and not more than 6 months between the two examinations.

Attendance

All students joining the postgraduate training programme shall work as full time residents during the period of training, attending not less than 80% (eighty percent) of the training during each calendar year, and will be given full time responsibility, assignments and participation in all facets of the educational process.

The period of training for obtaining the degrees shall be three completed years including the period of examination.

3. Syllabus

3.1 Theory

❖ Approach to important clinical problems

➤ Growth and development.

Short stature, obesity, precocious and delayed puberty, developmental delay, impaired learning.

➤ Neonatology.

Normal newborn, low birth weight newborn, sick newborn.

➤ Nutrition.

Lactation management and complementary feeding, protein energy malnutrition (underweight, wasting, stunting) and micronutrient and vitamin deficiency, failure to thrive.

➤ Cardiovascular.

Murmur, cyanosis, congestive heart failure, systemic hypertension, arrhythmia, shock.

➤ GIT and liver.

Acute, persistent and chronic diarrhea, abdominal pain and distension, ascites, vomiting, constipation, gastrointestinal bleeding, jaundice, hepatosplenomegaly and chronic liver disease, hepatic failure and encephalopathy.

➤ Respiratory

Cough/chronic cough, noisy breathing, wheezy child, respiratory distress, hemoptysis.

➤ Infections.

Acute onset, pyrexia with and without localizing sign, recurrent infections, nosocomial infections.

➤ Renal Hematuria / dysuria, bladder/bowel incontinence, voiding dys-functions, inguinoscrotal swelling, renal failure (acute and chronic).

➤ Hematooncology.

Lymphadenopathy, anemia, bleeding.

➤ Neurology.

Limping child, convulsions, abnormality of gait, intracranial space occupying lesion, paraplegia, quadriplegia, large head, small head, floppy infant, acute flaccid paralysis, cerebral palsy and other neuromotor disability, headache.

➤ Endocrine.

Thyroid swelling, ambiguous genitalia, obesity, short stature.

➤ Skin/Eye/ENT.

Skin rash, pigmentary lesions, pain/discharge from ear, hearing loss, epistaxis, refractory errors, blindness, cataract, eye discharge, redness, squint, proptosis.

➤ Miscellaneous.

Habit disorders, hyperactivity and attention deficit syndrome, arthralgia, arthritis, multiple congenital anomalies. speech disorders.

❖ Disorders

Definition, epidemiology, etiopathogenesis, presentation, complications, differential diagnosis, and treatment

➤ Growth and development.

Principles of growth and development, normal growth and development in childhood and adolescence, deviations in growth and development, sexual maturation and its disturbances.

➤ Neonatology.

Perinatal care, normal newborn, care in the labor room and resuscitation, low birth weight, prematurity, newborn feeding, respiratory distress, apnea, infections, jaundice, anemia and bleeding disorders, neurologic disorders, gastrointestinal disorders, renal disorders, malformations, thermoregulation and its disorders, understanding of perinatal medicine.

➤ Nutrition.

Maternal nutritional disorders: impact on fetal outcome, nutrition for the low birth weight, breast feeding, infant feeding including complementary feeding, protein energy malnutrition, vitamin and mineral deficiencies, trace elements of nutritional importance, obesity, adolescent nutrition, nutritional management in diarrhea, nutritional management of systemic illnesses (celiac disease), hepatobiliary disorders, nephrotic syndrome), parenteral and enteral nutrition in neonates and children.

➤ Cardiovascular.

Congenital heart diseases (cyanotic and acyanotic), rheumatic fever and rheumatic heart disease, infective endocarditis, arrhythmia, diseases of myocardium (cardiomyopathy, myocarditis), diseases of pericardium, systemic hypertension, hyperlipidemia in children.

➤ Respiratory.

Congenital and acquired disorders of nose, infections of upper respiratory tract, tonsils and adenoids, obstructive sleep apnea, congenital anomalies of lower respiratory tract, acute inflammatory upper airway obstruction, foreign body in larynx, trachea and bronchi, subglottic stenosis (acute and chronic), trauma to larynx, neoplasm of larynx and trachea, bronchitis, bronchiolitis, aspiration pneumonia, GER, acute pneumonia, recurrent and interstitial pneumonia, suppurative lung disease, atelectasis, lung cysts, emphysema and hyperinflation bronchial asthma, pulmonary edema, bronchiectasis, pleural effusion, pulmonary leaks, mediastinal mass.

➤ Gastrointestinal and liver diseases.

Diseases of mouth, oral cavity and tongue, disorders of deglutition and esophagus, peptic ulcer disease, H. pylori infection, foreign body, congenital pyloric stenosis, intestinal obstruction, malabsorption syndrome, acute and chronic diarrhea, irritable bowel syndrome, ulcerative colitis, Hirschsprung's disease, anorectal malformations, liver disorders: hepatitis, hepatic failure, chronic liver disease, Wilson's disease, Budd-Chiari syndrome, metabolic diseases of liver, cirrhosis and portal hypertension.

➤ Nephrologic disorders.

Acute and chronic glomerulonephritis, nephrotic syndrome, hemolytic uremic syndrome, urinary tract infection, VUR and renal scarring, renal involvement in systemic diseases, renal tubular disorders, congenital and hereditary renal disorders, renal and bladder stones, posterior ure-thral valves, hydronephrosis, voiding dysfunction, enuresis, undescended testis, Wilm's tumor, fluid-electrolyte disturbances.

➤ Neurologic disorders.

Seizure and non seizure paroxysmal events, epilepsy and epileptic syndromes of childhood, meningitis (pyogenic and TBM), brain abscess, coma, acute encephalitis and febrile encephalopathies, Guillain-Barre syndrome, neurocysticercosis and other neuro-infestations, HIV encephalopathy, SSPE, cerebral palsy, neurometabolic disorders, mental retardation, learning disabilities, muscular dystrophies, acute flaccid paralysis and AFP surveillance, ataxia, movement disorders of childhood, CNS tumors, malformations, Neurocutaneous syndrome, Neurodegenerative disorders, head injury

➤ Hematology and oncology.

Deficiency anemia, hemolytic anemia, aplastic anemia, pancytopenia, disorders of hemostasis, thrombocytopenia, blood component therapy, transfusion related infections, bone marrow transplant/ stem cell transplant, acute and chronic leukemia, myelodysplastic syndrome, Hodgkin disease, non-Hodgkin's lymphoma, neuroblastoma, hypercoagulable states, transfusion related problems.

➤ Endocrinology.

Hypopituitarism/hyperpituitarism, Diabetes insipidus, pubertal disorders, hypo and hyperthyroidism, hypo- and hyperparathyroidism, adrenal insufficiency, Cushing's syndrome, adrenogenital syndromes, diabetes mellitus, hypoglycemia, short stature, failure to thrive, gonadal dysfunction and intersexuality, pubertal changes and gynecological disorders.

➤ Infections.

Bacterial, viral, fungal, parasitic, rickettsial, mycoplasma, Pneumocystis carinii infections, chlamydia, protozoal and parasitic, tuberculosis, HIV, nosocomial infections, control of epidemics and infection prevention.

➤ Emergency and critical care.

Emergency care of shock, cardiorespiratory arrest, respiratory failure, congestive cardiac failure, acute renal failure, status epilepticus, fluid and electrolyte disturbances and its therapy, acid-base disturbances, poisoning, accidents, scorpion and snake bites. Management of arrhythmia, ARDS, Hepatic encephalopathy, CRF, DKA, poisoning (including OPC) near drowning, status asthmaticus .

➤ Immunology and rheumatology.

Arthritis (acute and chronic), connective tissue disorders, disorders of immunoglobulins, T and B cell disorders, immunodeficiency syndromes,

➤ ENT.

Acute and chronic otitis media, conductive/sensorineural hearing loss, postdiphtheritic palatal palsy, acute/chronic tonsillitis/adenoids, allergic rhinitis/sinusitis, foreign body.

➤ Skin diseases

Exanthematous illnesses, vascular lesions, pigment disorders, vesicobullous disorders, infections: pyogenic, fungal and parasitic; Steven-Johnson syndrome, eczema, seborrheic dermatitis, drug rash, urticaria, alopecia, ichthyosis.

➤ Eye problems.

Refraction and accommodation, partial/total loss of vision, cataract, night blindness, chorio-retinitis, strabismus, conjunctival and corneal disorders, retinopathy of prematurity, retinoblastoma, optic atrophy, papilledema.

➤ Behavioral and psychological disorders

Rumination, pica, enuresis, encopresis, sleep disorders, habit disorders, breath holding spells, anxiety disorders, mood disorders, temper tantrums, attention deficit hyperactivity disorder, autism.

➤ Social paediatrics.

National health programs related to child health, child abuse and neglect, child labor, adoption, disability and rehabilitation, rights of the child, national policy of child health and population, juvenile delinquency.

➤ Genetics.

Chromosomal disorders, single gene disorders, multifactorial/polygenic disorders, genetic diagnosis, and prenatal diagnosis, gene therapy and genetic counselling.

➤ Orthopedics.

Major congenital orthopedic deformities, bone and joint infections: pyogenic, tubercular, and common bone tumors.

➤ Vaccine preventable diseases/all vaccines including newer vaccines.

➤ Miscellaneous

Inborn errors of metabolism, allergic disorders.

➤ Clinical

3.2 Practical

➤ History and examination.

History taking including psychosocial history, environmental immunization history, physical examination including fundus examination, newborn examination, including gestation assessment; thermal protection of young infants, nutritional anthropometry and its assessment, assessment of growth, use of growth chart, SMR rating, developmental evaluation, communication with children, parents, health functionaries and social support groups; and genetic counseling.

➤ Bedside procedures

* Monitoring skills: Temperature recording, capillary blood sampling, arterial blood sampling.

* Therapeutic skills: Hydrotherapy, nasogastric feeding, endotracheal intubation, cardiopulmonary resuscitation (paediatric and neonatal), administration of oxygen, venepuncture and establishment of vascular access, administration of fluids, blood, blood components, parenteral nutrition, intraosseous fluid administration, intrathecal administration of drugs, common dressings, abscess drainage and basic principles of rehabilitation.

* Investigative skills: Lumbar puncture, ventricular tap, bone marrow aspiration and biopsy, pleural, peritoneal, pericardial and subdural tap, biopsy of liver and kidney, collection of urine for culture, urethral catheterization, suprapubic aspiration.

* Bedside investigations.

Hemoglobin, TLC, ESR, peripheral smear staining and examination, urine: routine and microscopic examination, stool microscopy including hanging drop preparation, examination of CSF and other body fluids, Gram stain, ZN stain, shake test on gastric aspirate.

* Interpretation of X-rays of chest, abdomen, bone and head; ECG; ABG findings; CT/MRI scan and other investigation relevant to Paediatrics.

* Understanding of common EEG patterns, audiograms, ultrasonographic abnormalities and isotope studies.

❖ Basic Sciences

Embryogenesis of different organ systems especially heart, genitourinary system, gastrointestinal tract, applied anatomy of different organs, functions of kidney, liver, lungs, heart and endocrinal glands. Physiology of micturition and

defecation, placental physiology, fetal and neonatal circulation, regulation of temperature (especially newborn), blood pressure, acid base balance, fluid electrolyte balance, calcium metabolism, vitamins and their functions, hematopoiesis, hemostasis, bilirubin metabolism. Growth and development at different ages, puberty and its regulation, nutrition, normal requirements of various nutrients. Basic immunology, biostatistics, clinical epidemiology, ethical and medicolegal issues, teaching methodology and managerial skills, pharmacokinetics of commonly used drugs, microbial agents and their epidemiology.

❖ **Community and Social Paediatrics**

National health nutrition programs, nutrition screening of community, prevention of blindness, school health programs, prevention of sexually transmitted diseases, contraception, health legislation, national policy on children, adolescence, adoption, child labor, juvenile delinquency, government and nongovernment support services for children, investigation of adverse events following immunization in the community, general principles of prevention and control of infections including food borne, waterborne, soil borne and vector borne diseases, investigation of an outbreak in a community.

4. TEACHING PROGRAM

4.1. General Principles

Acquisition of practical competencies being the keystone of postgraduate Medical education, postgraduate training should be skill oriented.

Learning in postgraduate program is essentially self-directed and primarily Emanating from clinical and academic work. The formal sessions are meant to supplement this core effort.

4.2. Teaching Sessions

- ❖ Clinical case discussions :
 - PG bed side
 - Teaching rounds
 - Mock Examination
- ❖ Seminars/Journal club
- ❖ Statistical meetings : weekly/monthly, clinico pathological meet
- ❖ Mortality meetings
- ❖ Perinatal meetings
- ❖ Interdepartmental Meetings : Paediatric Surgery, Obstetrics, Skin, pathology, SPM, Pharmacology, Radiology
- ❖ Others – Guest lectures/vertical seminars/Central Stat meets.

4.3. Teaching Schedule:

In addition to bedside teaching rounds in the department, there should be dailyhourly sessions of formal teaching. The suggested teaching schedule is asfollows:

1. Journal club	Once a fortnight
2. Seminar	Once a fortnight
3. Bed side case discussion	Once a week
4. Statistics and mortality meet (Detailed discussion of all the deaths occurring in previous week)	Once a week
5. Statistics (including OPD, ward, nursery and PICU)	Once a month
6. Thesis meet/ Intradepartment meet to monitor Progress by PG residents for administrative training	Once a month
7. Interdepartmental meet (cardiology, neurology, Radiology, pharmacology, microbiology, statistics etc)	Once a month

8. Perinatology meets with department of Obstetrics and Gynae including statistics discussing any neonatal Death/topic

Once a month

9. Mock exam (bed side case is allotted 1 hour prior to Presentation) on the pattern of University examination.

Once a week

Central session (CPC, guest lectures, integrated student seminars, grand round, sessions on basic sciences, biostatistics, research methodology, teaching methodology, health economics, medical ethics and legal issues).

Once a week

Note:

- ❖ All sessions should be attended by the faculty members
- ❖ All teaching sessions should be assessed by the consultants at the end of session.

4.4 Postings

The postgraduate student should rotate through all the clinical units in the department.

Neonatology (including perinatology): 6 months

Intensive Care: 6-8 months

Emergency: 4-6 months

Paediatric ward (including outpatient dept): 9-12 months

with rotation in all the units.

5. Maintenance of logbook

Following to be documented by postgraduates

- 1) Procedures- Performed, Assisted, Observed
- 2) Details of seminars /symposium participated and also scientific papers presented
- 3) No of cases presented at bed side
- 4) Bed side procedures done
- 5) Cases presented in clinical meetings
- 6) CME/Conferences/CPC attended
- 7) Journal clubs participated and abstracts of papers presented
- 8) Scientific paper publications.

5.1 It is preferable that a post graduate student during the course to present one poster presentation and /or to read one paper at a national /state conference and /or to present one research paper which can be published/accepted for publication/sent for publication during the period of his/her postgraduate studies.

6. Thesis

Every student registered as post graduate shall carry out work on an assigned research project under the guidance of a recognized post graduate teacher, the result of which shall be written up and submitted in the form of a thesis.

Work for writing the Thesis is aimed at contributing to the development of a spirit of enquiry, besides exposing the student to the techniques of research, critical analysis, acquaintance with the latest advances in medical science and the manner of identifying and consulting available literature. Thesis shall be submitted at least six months before the theoretical and clinical / practical examination.

The thesis shall be a bound volume of a minimum of 50 pages and not exceeding 75 pages of typed matter (Double line spacing and on one side only) excluding certification, acknowledgements, annexure and bibliography.

Thesis should consist of

- (a) Introduction
- (b) Review of literature
- (c) Aims and objectives
- (d) Material and methods
- (e) Result
- (f) Discussion
- (g) Summary and conclusion
- (h) Tables
- (i) Annexure
- (j) Bibliography

Four copies of thesis shall be submitted six months prior to the commencement of the theory examinations on the date prescribed by the Controller of Examinations of this University. The thesis should be approved by the Professor of that branch and the same has to be forwarded to the Controller of Examinations, by the head of the department through the Dean of the college.

Two copies in addition are to be submitted as an electronic version of the entire thesis in a standard C.D. format by mentioning the details and technicalities used in the C.D. format.

The thesis shall be examined by a minimum of three examiners; one internal and two external examiners, who shall not be the examiners for Theory and clinical; and on the acceptance of the thesis by two examiners, the student shall be allowed to appear for the final examination.

EVALUATION OF THESIS :

ACCEPTED / NOT ACCEPTED

No marks will be given

7. SCHEME OF EXAMINATION

All the PG residents will be assessed daily for their academic activities and also periodically.

7.1. General Principles

- ❖ The assessment is valid, objective, and reliable.
- ❖ It covers cognitive, psychomotor and affective domains.
- ❖ Formative, continuing and summative (final) assessment is also conducted in theory as well as practicals/clinicals. In addition, thesis is also assessed separately.

7.2. Formative Assessment

The formative assessment is continuous as well as end-of-term. The former is based on the feedback from the senior residents and the consultants concerned. End-of-term assessment is held at the end of each semester (upto the 5th semester). Formative assessment will not count towards pass/fail at the end of the program, but will provide feedback to the student.

7.3. Internal Assessment

The performance of the Postgraduate student during the training period should be monitored throughout the course and duly recorded in the log books as evidence of the ability and daily work of the student. No marks is allotted for the log books.

1. Personal attributes:

- ❖ **Behavior and Emotional Stability:** Dependable, disciplined, dedicated, stable in emergency situations, shows positive approach.
- ❖ **Motivation and Initiative:** Takes on responsibility, innovative, enterprising, does not shirk duties or leave any work pending.
- ❖ **Honesty and Integrity:** Truthful, admits mistakes, does not cook up information, has ethical conduct, exhibits good moral values, loyal to the institution.

- ❖ **Interpersonal Skills and Leadership Quality:** Has compassionate attitude
- ❖ towards patients and attendants, gets on well with colleagues and paramedical
- ❖ staff, is respectful to seniors, has good communication skills.

2. Clinical Work:

- ❖ **Availability:** Punctual, available continuously on duty, responds promptly on calls and takes proper permission for leave.
- ❖ **Diligence:** Dedicated, hardworking, does not shirk duties, leaves no work pending, does not sit idle, competent in clinical case work up and management.
- ❖ **Academic ability:** Intelligent, shows sound knowledge and skills, participates adequately in academic activities, and performs well in oral presentation and departmental tests.
- ❖ **Clinical Performance:** Proficient in clinical presentations and case discussion during rounds and OPD work up. Preparing Documents of the case history/examination and progress notes in the file (daily notes, round discussion, investigations and management) Skill of performing bed side procedures and handling emergencies.

3. Academic Activity: Performance during presentation at Journal club/Seminar/Case discussion/Stat meeting and other academic sessions. Proficiency in skills as mentioned in job responsibilities.

4. End of term theory examination conducted at end of 1st, 2nd year and after 2 years 9 months

5. End of term practical/oral examinations after 3 years June 1st week.

6. Summative Assessment

Ratio of marks in theory and practicals will be equal.

The pass percentage will be 50%.

Student will have to pass theory and practical examinations separately.

A. Theory examination (Total = 400 marks)

Title	Marks
Paper 1: Basic sciences as related to paediatrics	100
Paper 2: Principles and Practice of Paediatrics	100
Paper 3: Preventive & Social aspects of Paediatrics and Diseases of Neonates & Infants	100
Paper 4: Recent Advances in Paediatrics	100

B. Practical & viva voce examination (Total = 300 marks)

Long Case (s)	100
Short Case (s) x2	100
Viva Voce (5x20)	100
Equipments	
Nutrition	
Drugs /vaccine	
X –rays	
Knowledge	

Total	----- 300 -----
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Marks Qualifying For a Pass

MARKS QUALIFYING FOR A PASS	MAXIMUM MARKS	QUALIFYING FOR A PASS 50% MARKS
Theory Examination	400	200
Practical Including clinical and Viva voce examination	300	150

A student shall secure not less than 50% marks in each head of passing which shall include 1. Theory, 2. Practical including clinical and viva voce examination.

7. Job Responsibilities

OPD : History and work up of all cases and presentation to the consultants

- ❖ This includes all the special clinics also
- ❖ Documentation. OPD card and register completion and maintenance

Indoors:

- ❖ **PICU/NSCU & NICU/Emergency** : Sending investigations and filling investigation forms

Ward: History and work up of all cases

- Starting initial management – Oxygen, IV antibiotics, fluids
- Transport of sick patients
- Preparation of weekly, monthly & annual stat Sending AFP reports.
- ❖ Performing procedures:
 - I/V cannulation
 - Lumbar puncture
 - Bone marrow examination
 - Plural tap, peritoneal tap, pericardial tap, central line insertion, renal biopsy,liver biopsy
- ❖ Examination of all patients and documentation in the files.
- ❖ Completion of files
- ❖ Preparation of typed discharge summary

8.EXAMINATION AND EVALUATION

(1) EXAMINERS

(a) All the Post Graduate Examiners shall be recognised Post Graduate Teachers holding recognised Post Graduate qualifications in the subject concerned.

(b) For all Post Graduate Examinations, the minimum number of Examiners shall be four, out of which at least two (50%) shall be External Examiners, who shall be invited from other recognised universities from outside the State and other two will be internal examiners for M.D.

(c) Under exceptional circumstances, examinations may be held with 3 (three) examiners provided two of them are external and Medical Council of India is intimated the justification of such action prior to publication of result for approval. Under no circumstances, result shall be published in such cases without the approval of Medical Council of India.

(d) In the event of there being more than one centre in one city, the external examiners at all the centres in that city shall be the same. Where there is more than one centre of examination, the University shall appoint a Supervisor to coordinate the examination on its behalf.

(e) The guidelines regarding appointment of examiners are as follows;-

1. No person shall be appointed as an examiner in any subject unless he fulfils the minimum requirements for recognition as a Post Graduate teacher as laid down by the Medical Council of India and has teaching experience of 8 (Eight) years as a Lecturer / Assistant Professor out of which he has not less than 5 (Five) years teaching experience after obtaining Post Graduate degree. For external examiners, he should have minimum three years experience of examinership for Post Graduate diploma in the concerned subject. Out of internal examiners, one examiner shall be a professor and Head of Department or Head of Department.

2. There shall be at least four examiners in each subject at an examination out of which at least 50% (Fifty percent) shall be external examiners. The external examiner who fulfils the condition laid down in clause – 1 above shall ordinarily be invited from another recognised university, from outside the State: provided that in exceptional circumstances examinations may be held with 3 (three) examiners if two of them are external and Medical council of India is intimated with the justification of such examination and the result shall be published in such a case with the approval of Medical council of India.
3. An external examiner may be ordinarily been appointed for not more than three years consecutively. Thereafter he may be reappointed after an interval of two years.
4. The internal examiner in a subject shall not accept external examinership for a college from which external examiner is appointed in his subject.
5. The same set of examiners shall ordinarily be responsible for the written, practical or part of examination.
6. In the event of there being more than one centre in one city, the external examiners at all the centres in the city shall be the same.
7. There shall be a Chairman of the Board of paper – setters who shall be an external examiner and shall moderate the question papers.
8. Where there is more than one centre of examination, there shall be Co-ordinator appointed by the University who shall supervise and Co-ordinate the examination on behalf of the University with independent authority.
9. The Head of the Department of the institution concerned shall ordinarily be one of the internal examiners and second internal examiner shall rotate after every two year.

(2) Number of candidates

The maximum number of candidates to be examined in Clinical / practical and Oral on any day shall not exceed eight for M.D. degree examination.

3) Number of examinations

The university shall conduct not more than two examinations in a year, for any subject, with an interval of not less than 4 and not more than 6 months between the two examinations.

(4) Doctor of Medicine (M.D) Paediatrics

M.D. examination shall consist of Thesis, Theory Papers, and clinical/Practical and Oral examinations.

(a) Thesis

Every candidate shall carry out work on an assigned research project under the guidance of a recognised Post Graduate Teacher, the result of which shall be written up and submitted in the form of a Thesis.

Work for writing the Thesis is aimed at contributing to the development of a spirit of enquiry, besides exposing the candidate to the techniques of research, critical analysis, acquaintance with the latest advances in medical science and the manner of identifying and consulting available literature. Thesis shall be submitted at least six months before the theoretical and clinical / practical examination.

The thesis shall be examined by a minimum of three examiners; one internal and two external examiners, who shall not be the examiners for Theory and Clinical; and on the acceptance of the thesis by two examiners, the candidate shall appear for the final examination.

(b) Theory

(i) There shall be four theory papers.

(ii) Out of these one shall be of Basic Medical Sciences and one shall be of recent advances.

(iii) The theory examinations shall be held sufficiently earlier than the Clinical and Practical examination, so that the answer books can be assessed and evaluated before the start of the Clinical/Practical and Oral examination.

(c) Clinical / Practical and Oral

(i) Clinical examination for the subjects in Clinical Sciences shall be conducted to test the knowledge and competence of the candidates for undertaking independent work as a specialist/Teacher, for which candidates shall examine a minimum one long case and two short cases.

(ii) Practical examination for the subjects in Basic Medical Sciences shall be conducted to test the knowledge and competence of the candidates for making valid and relevant observations based on the experimental/Laboratory studies and his ability to perform such studies as are relevant to his subject.

(iii) The Oral examination shall be thorough and shall aim at assessing the candidate knowledge and competence about the subject, investigative procedures, therapeutic technique and other aspects of the speciality, which form a part of the examination.

A candidate shall secure not less than 50% marks in each head of passing which shall include (1) Theory, (2) Practical including clinical and viva voce examination.

Evaluation of Answer Scripts

The answer books will be valued by two examiners. One of the two examiners will be from this university and the other will be from any other university. The Average of the two marks secured by the candidate will be taken into account. If the difference between two marks exceeds 10%, the answer scripts shall be valued by the third examiner. The average of the nearest two marks shall be considered as the final mark.

9. MODEL QUESTION PAPER

MD (Paediatrics)

Paper-I

Basic Sciences as related to Paediatrics

Time: 3 hours

Max. Marks: 100

10x10=100 Marks

Answer all questions

1. Give various steps of thyroid hormone synthesis. Describe types of thyroid dysgenesis.
2. Describe the mechanism of thermogenesis in newborns.
3. Enumerate the 4 signs of good attachment of a baby at the breast. Discuss the advantages of breast milk over bovine milk.
4. Discuss the pathogenesis of typhoid fever. Explain the interpretation of the widal test.
5. Draw and describe structure of a renal tubule. Enumerate its functions.
6. Outline the mechanism of CSF formation and its circulation. Mention the various lesions involved in obstructive hydrocephalus.
7. What is the embryological basis of Tracheo - Esophageal Fistula? Enumerate the various types of Tracheo - Esophageal Fistula.
8. Discuss the pathogenesis of bronchial asthma.
9. Enumerate the causes of generalized oedema in a child and give the basic etiopathogenesis of each.
10. Mention the embryological basis of VSD. Describe the hemodynamics involved.

MD (Paediatrics)

Paper –II

Principles and practice of Paediatrics

Time: 3 hours

Max. Mark: 100

Answer all questions

I). Essay

2X20=40

1. Describe etiology, diagnosis & treatment protocol of a case of Aplastic Anemia in a child.
2. Enumerate the various neurocutaneous syndromes in children. Discuss the neuro imaging findings in each of them.

II).Short Questions

10X6=60

1. How would you investigate a child with failure to thrive?
2. Describe about the general principles of genetic counselling
3. Discuss the management of frequent relapsing Nephrotic Syndrome.
4. Describe the complications of enteric fever.
5. Discuss the management of a cyanotic spell.
6. Rheumatoid Arthritis.
7. Diagnosis of tuberculosis in children
8. Rickettsial infections
9. Management of urinary tract infections
10. Adrenal hyperplasia

MD (Paediatrics)

Paper –III

Preventive & Social aspects of Paediatrics and diseases of Neonates and Infants

Time: 3 hours

Max. Mark: 100

Answer all questions

I). Essay

2X20=40

1. Give the algorithm for diagnosis of neonatal cholestasis. Tabulate the differences between Extrahepatic Biliary Atresia (EHBA) and Neonatal Hepatitis.
2. Mention the definition and types of apnea in new born. How will you treat a baby with apnea of prematurity?

II). Short Questions

10X6=60

1. Enumerate the goals of Reproductive and Child Health (RCH) and the package of services offered by this for children and mothers.
2. Give Acute Flaccid Paralysis (AFP) case classification flow chart. How will you Collect, store & transfer stool sample in a case of AFP?
3. Describe the timings and dosages of various nutritional supplements in LBW babies.
4. Describe various components of bio-physical profile
5. Enumerate the four questions to be asked to self while receiving a baby at birth. How would you manage in case there is "NO" to any of these?
6. Give the composition of surfactant. Describe the various preventive strategies for Hyaline Membrane Disease (HMD).
7. Feeding of infants born to HIV infected mother
8. Perinatal infections
9. Skin care of newborn
10. Feeding of baby with cleft palate

MD (Paediatrics)

Paper –IV

Recent Advances in Paediatrics

Time: 3 hours

Max. Mark: 100

Answer all questions

I). Essay

2X20=40

1. Describe Recent advances in the investigation & treatment of Neonatal Hypoxic Ischemic Encephalopathy.
2. Enumerate the causes of short stature in children. Outline the changes in the newly developed WHO growth standards.

II).Short Questions

10X6=60

1. Enumerate the uses of zinc in children. Describe its mechanism of action and advantages in acute diarrheal disease.
2. What is the basis of intermittent therapy in DOTS?
3. Outline the algorithm in management of septic shock.
4. Enumerate the changes made in the updated PALS guidelines on Paediatric resuscitation of AHA-2000.
5. Enumerate the stages of hepatic encephalopathy. Describe the recent advances in its treatment.
6. Describe the source, storage & indication for stem cell therapy.
7. Bubble CPAP for Respiratory distress
8. Vit- D status in various diseases
9. Optional vaccines
10. Pollution & oxidation stress in school children

9. RECOMMENDED BOOK & JOURNALS

- ❖ Nelson Text book of Paediatrics – 2 volume 18th Edition Saundersw, Philadilphi, 2008.
- ❖ Avery Text book of Neonatology – Macdonald. 6th Edition Lippincott, 2005.
- ❖ Care of Newborn - Meharban Singh. 6th Edition Sagar Publication, 2004.
- ❖ Cloherty – Mannual of Neonatal Care. 6th Edition Lippincott, Philadelphi, 2008.
- ❖ IAP Text book of Paediatrics. 3rd Edition Jaypee Brothers, New Delhi, 2007.
- ❖ Paediatric cardiology – Myung, Park.k. 5th Edition, Elsevier.2009
- ❖ Hematology of infancy and child hood – Stuart Orkin.H, 7th Edition, Stuart, Orkin.H. Saunders, 2009.
- ❖ Kendig's disorder of the respiratory tract in children. Chernick, Victor – 7th Edition, Saunders, 2009.
- ❖ Development of infant & young child normal & abnormal - Illingworth Churchill Livingston, 2004.
- ❖ Medical Emergencies - Meharban Singh 3rd Edition, Sager Publication, 2000

Journals

International

1. Archives of Diseases in Childhood (F)
2. Paediatrics clinics of North America (F)
3. Pediatrics (F)

Indian

1. Indian Journal of Paediatrics
2. Indian Journal of Practical Paediatrics
3. Indian Paediatrics
4. Journal of Indian Association of Paediatric Surgeons

Online Journals

1. Academic Paediatrics
2. Archives de Paediatric
3. Clinical Paediatric Emergency Medicine
4. Current Problems in Paediatric and Adolescent Health Care
5. European Journal of Paediatric Neurology
6. European Journal of Paediatrics
7. Indian Paediatrics
8. Journal de Paediatric et de Puericulture
9. Journal of Paediatric and Adolescent Gynecology
10. Journal of Paediatric Health Care
11. Journal of Paediatric Nursing
12. Paediatrics and Child Health
13. Paediatric and Developmental Pathology
14. Paediatric & Neonatology
15. Seminars in Fetal and Neonatal Medicine
16. Seminars in Perinatology
17. The Indian Journal of Pediatrics
18. World Journal of Paediatrics

Success trcads on every right step

- R.W .Emerson