



MAHATMA GANDHI UNIVERSITY
of
MEDICAL SCIENCES & TECHNOLOGY
JAIPUR

Super Specialty Courses

SYLLABUS DM-NEPHROLOGY

Notice

1. Amendment made by the Medical Council of India in Rules/Regulations of Post Graduate Medical Courses shall automatically apply to the Rules/Regulations of the Mahatma Gandhi University of Medical Sciences & Technology (MGUMST), Jaipur.

2. The University reserves the right to make changes in the syllabus/books/guidelines, fees-structure or any other information at any time without prior notice. The decision of the University shall be binding on all.

3. The Jurisdiction of all court cases shall be Jaipur Bench of Hon'ble Rajasthan High Court only.

**Syllabus of DM / M.Ch. Courses
DM - NEPHROLOGY (9310)**

Selection of candidates:

There shall be a uniform entrance examination to all medical educational institutions at the Postgraduate level namely 'National Eligibility-cum-Entrance Test' for admission to postgraduate courses in each academic year and shall be conducted under the overall supervision of the Ministry of Health & Family Welfare, Government of India.

In order to be eligible for admission to Postgraduate Course for an academic year, it shall be necessary for a candidate to obtain minimum of marks at 50th percentile in the 'National Eligibility-Cum-Entrance Test for Postgraduate courses' held for the said academic year. However, in respect of candidates belonging to Scheduled Castes, Scheduled Tribes, and Other Backward Classes, the minimum marks shall be at 40th percentile. In respect of candidates with benchmark disabilities specified under the Rights of Persons with Disabilities Act, 2016, the minimum marks shall be at 45th percentile for General Category and 40th percentile for SC/ST/OBC.

The percentile shall be determined on the basis of highest marks secured in the All India Common merit list in National Eligibility-cum-Entrance Test for Postgraduate courses.

Provided when sufficient number of candidates in the respective categories fail to secure minimum marks as prescribed in National Eligibility-cum-Entrance Test held for any academic year for admission to Postgraduate Courses, the Central Government in consultation with Medical council of India may at its discretion lower the minimum marks required for admission to Post Graduate Course for candidates belonging to respective categories and marks so lowered by the Central Government shall be applicable for the academic year only.

The reservation of seats in Medical Colleges/institutions for respective categories shall be as per applicable laws prevailing in States/Union Territories. An all India merit list as well as State-wise merit list of the eligible candidates shall be prepared on the basis of the marks obtained in National Eligibility-cum-Entrance Test and candidates shall be admitted to Postgraduate Courses from the said merit lists only.

There shall be no admission of students in respect of any academic session beyond 31st August under any circumstances. The Universities shall not register any student admitted beyond the said date.

Eligibility:

| S. No. | Area of Specialisation | Prior Requirement |
|--------|--|-----------------------------|
| 1 | DM Cardiology | MD (Medicine / Paediatrics) |
| 2 | DM Medical Gastroenterology | |
| 3 | DM Nephrology | |
| 4 | DM Neurology | |
| 5 | M.Ch. Cardio vascular & Thoracic Surgery | MS (Surgery) |
| 6 | M.Ch. Urology | |
| 7 | M.Ch. Neuro-Surgery | |
| 8 | M.Ch. Plastic Reconstructive Surgery | |

Common Counseling:

There shall be a common counseling for admission to all Postgraduate Super specialty Courses (DM/ M.Ch.) in all Medical Educational Institutions on the basis of merit list of the National Eligibility-cum-Entrance Test.

Period of Training:

The period of training for obtaining DM/M.Ch Degrees shall be three completed years including the examination period.

Migration:

Under no circumstance, Migration/transfer of student undergoing any Super Specialty course shall be permitted by any University/ Authority.

Staff - Faculty:

Only those teachers who possess 6 years teaching experience out of which at least 2 years teaching experience as Assistant Professor gained after obtaining the higher specialty degree shall be recognized post graduate teacher.

No teacher shall be considered as a postgraduate teacher in any other institution during the period till the postgraduate course at the institute which has been granted permission considering him as a postgraduate teacher is recognized u/s 11(2) of the Indian Medical Council Act, 1956.

Minimum staff required (Super-Speciality):

- 1- Professor
- 1- Associate Professor
- 1- Assistant Professor
- 1- Senior Resident
- 2- Junior Resident

Training programme:

All the candidates joining the Post Graduate training programme shall work as 'Full Time Residents' during the period of training and shall attend not less than 80% (Eighty percent) of the imparted training during each academic year (Academic Term of 6 months) including assignments, assessed full time responsibilities and participation in all facets of the educational process.

No candidate shall be permitted to run a clinic/work in clinic/laboratory/nursing home while studying postgraduate super specialty course. No candidate shall join any other course or appear for any other examination conducted by this university or any other university in India or abroad during the period of registration.

Every institution undertaking Post Graduate training programme shall set up an Academic cell or a curriculum committee, under the chairmanship of a senior faculty member, which shall work out the details of the training programme in each speciality in consultation with other department faculty staff and also coordinate and monitor the implementation of these training Programmes.

The training programmes shall be updated as and when required. The structured training programme shall be written up and strictly followed, to enable the examiners to determine the training undergone by the candidates and the Medical Council of India inspectors to assess the same at the time of inspection.

Post Graduate students shall maintain a record (log) book of the work carried out by them and the training programme undergone during the period of training including details of surgical operations assisted or done independently by M.Ch. candidates.

The Record (Log) Books shall be checked and assessed periodically by the faculty members imparting the training.

During the training for award of Degree / Superspecialty in clinical disciplines, there shall be proper training in Basic medical sciences related to the disciplines concerned; so also in the applied aspects of the subject; and allied subjects related to the disciplines concerned. In the Post Graduate training programmes including both Clinical and Basic medical sciences, emphasis has to be laid on Preventive and Social aspects. Emergency care, facilities for Autopsies, Biopsies, Cytopsies, Endoscopy and Imaging etc. shall also be made available for training purposes.

The Post Graduate students shall be required to participate in the teaching and training programme of undergraduate students and interns.

Training in Medical Audit, Management, Health Economics, Health Information System, basics of statistics, exposure to human behaviour studies, knowledge of pharmaco – economics and introduction to nonlinear mathematics shall be imparted to the Post Graduate students.

The teaching and training of the students shall include graded responsibility in the management and treatment of patients entrusted to their care; participation in Seminars, Journal Clubs, Group Discussions, Clinical Meetings, Grand Rounds, and Clinico-Pathological Conferences; practical training in Diagnosis and Medical and Surgical treatment; training in the Basic Medical Sciences, as well as in allied clinical specialities.

The training programme shall be on the same pattern as for M.D. / M.S. in clinical disciplines; with practical training including advanced Diagnostic, Therapeutic and Laboratory techniques, relevant to the subject of specialization. Postgraduate Superspecialty Residents in Surgical Specialties shall participate in Surgical operations as well.

A postgraduate student of a postgraduate degree course in super specialities would be required to present one poster presentation, to read one paper at a national/state conference and to present one research paper which should be published/accepted for publication/sent for publication during the period of his postgraduate studies so as to make him eligible to appear at the postgraduate degree examination.

ENROLMENT AND REGISTRATION:

Every candidate who is admitted to DM/MCh. course in Mahatma Gandhi Medical College & Hospital shall be required to get himself/herself enrolled and registered with the Mahatma Gandhi University of Medical Sciences & Technology upto November 30 of the year of admission without late fees upto December 31 of the year of admission with late fees after paying the prescribed eligibility and enrolment fees.

The candidate shall have to submit an application for the enrolment/eligibility along with the following original documents with the prescribed fees –

- (a) MD/MS pass Marks sheet/Degree certificate issued by the University.
- (b) Migration certificate issued by the concerned University (in case the University is other than the MGUMST).
- (c) Date of Birth Certificate
- (d) Certificate regarding registration with Rajasthan Medical Council / Medical Council of India / Other State Medical Council.

EXAMINATIONS:

The examination shall be held at the end of three academic years (six academic terms). The academic term shall mean six months training period. The examination shall consist of: Theory and Clinical/Practical and Oral.

The examinations shall be organised on the basis of 'Marking system' to evaluate and to certify candidate's level of knowledge, skill and competence.

For passing DM/M.Ch. examination as a whole, a candidate shall secure not less than 50% marks in each head of passing which shall include (1) Theory (2) Clinical / Practical and Oral examination.

(1) Theory:

There shall be four theory papers of 3 hours duration and 100 marks each. Out of the four theory papers, one Paper-I shall be on 'Basic Sciences', and another Paper-IV on 'Recent Advances'. The theory examination shall be held in advance before the Clinical and Practical examination, so that the answer books can be assessed and evaluated before the commencement of the clinical/Practical and Oral examination.

Paper I and II will be set by one external examiner from outside of the state and paper III and IV by another external examiner from outside of the state. The external examiner, who is paper setter for paper I & II shall evaluate the answer books of paper II. The external examiner, who is paper setter for paper III & IV shall evaluate the answer books of paper III. The answer books of paper I & IV shall be evaluated by internal examiners. The answer books of paper IV shall be evaluated by the Head of the Department and the answer books of paper I shall be evaluated by the second Internal Examiner.

Candidates will be required to attempt all the questions in every question paper. In Paper I, Paper II and Paper III there will be 10 questions. Each question shall carry 10 marks. In Paper IV there will be 5 questions of 20 marks each.

Obtaining a minimum of 40% marks in each theory paper and not less than 50% cumulatively in all the four papers shall be compulsory to pass the examination.

Nomenclature of Papers:

Paper-I : Basic Sciences : Principles of Nephrology

Paper-II : Clinical Nephrology Including Paediatric Nephrology

Paper-III : Diagnostic and Therapeutic Nephrology Including Intervention

Paper-IV : Recent Advances In Nephrology

(2) Clinical / Practical and Oral:

Clinical/Practical examination shall be conducted to test / aimed at assessing the knowledge and competence of the candidate for undertaking independent work as a specialist / teacher. Practical examination shall consist of carrying out special investigative techniques for Diagnosis and Therapy. M.Ch candidates shall also be examined in surgical procedures. Oral examination may be comprehensive enough to test the candidate's overall knowledge and competence about the subject, investigative procedures, therapeutic technique and other aspects of the specialty, which shall form a part of the examination.

There shall be one long case of 150 marks, two short cases of 75 marks each and Oral Examination of 100 Marks (Viva - 50 marks, Two Histopathology slides – 25 marks, Two Radio imaging projections – 25 marks). Obtaining of 50% marks in Clinical / Practical and Oral examination shall be mandatory for passing the Clinical / Practical and Oral examination.

Result:

For passing DM/M.Ch. Examination, a candidate will be required to obtain at least 40% marks in each theory paper, 50% marks in the aggregate of all the four theory papers and 50% marks in the aggregate of Clinical / Practical and Oral examination separately. A candidate failing in any theory paper or in the aggregate of all four theory papers or Clinical / Practical and Oral examination shall have to repeat the whole DM/M.Ch. examination.

Grace Marks:

No grace marks will be provided in DM/M.Ch. examinations.

Revaluation / Scrutiny:

No Revaluation shall be permitted in the DM/M.Ch. examinations. However, the student can apply for scrutiny of the answer books as per University Rules

Examiners:

As per the Amendment Notification of the MCI dated June 5, 2017, no person shall be appointed as an internal examiner in any subject unless he/she has three years experience as recognized PG teacher in the concerned subject. For external examiners, he/she should have minimum six years of experience as recognized PG teacher in the concerned subject.

For all Post Graduate Super specialties 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.

Number of Candidates:

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

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.

DM - NEPHROLOGY (9310)

Duration : 3 Years

Admission eligibility : MD (Medicine / Paediatrics)

GOALS

The goal of DM Nephrology is to produce a competent nephrologist who:

- Has acquired the competence pertaining to Nephrology that is required to be practiced in the community and at all levels of health care system
- Has acquired the skills to manage the patient effectively pertaining to nephrology
- Has acquired skill in effectively communicating with patient and his attendants.
- Has the desired skills to independently manage emergency cases
- Is aware of the latest developments in the field of nephrology oriented to principles of research methodology
- Has acquired skills in educating medical and paramedical professionals.

OBJECTIVES

At the end of the DM Nephrology, the student should be able to

- Practice the specialty of nephrology in keeping with the principles of professional ethics
- Recognize and identify the various renal problems
- Institute diagnostic, therapeutic, rehabilitative and preventive measures to provide holistic care to the patient
- Take detailed history, perform full physical examination and make clinical diagnosis, perform relevant investigative and therapeutic procedures
- Interpret important imaging and laboratory results
- Independently perform basic surgical procedures
- Manage emergency efficiently
- Demonstrate empathy and human approach towards patients and their families.
- Demonstrate communication skills of a high order in explaining management and prognosis, providing counseling and giving health education 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 medicine, facilitate learning of medical/nursing students, practicing physicians, paramedical health workers and other providers as a teacher/trainer
- Organize and supervise the desired managerial and leadership skills

The major components of our Post-Graduate Curriculum are according to the guidelines issued by the MCI

1. Theoretical Knowledge
2. Practical and Clinical skills
3. Attitudes including Communication skills
4. Knowledge about research methodology.

CURRICULUM

- Training will be exclusively on whole time in-service basis on the residency pattern.

- The programme will impart a sound training in the diagnosis and management of patients with renal disorders. During the training period, the candidate shall take part in all the activities of the department including inpatient and outpatient nephrology care, laboratory and investigative work up, lectures, seminars, conferences, group discussions and various other clinical and teaching assignments. The candidate will work as a member of the renal team and will be given the responsibility of investigation and therapeutic care of all patients under the direct guidance of the consultants in Nephrology. He will be first on call for routine and emergency renal consultants.
- Each candidate will go through the following rotations in various areas/sub specialties of nephrology during 3 years of training in Nephrology.
 - I. Inpatients services/Out-patient Clinics/Consultations 6 months / year
 - II. II. Dialysis 3 months/ year
 - III. Renal transplantation 3 months/ year

The candidate would be involved in the pre-transplant, immediate post-transplant and late post transplant medical management of renal transplant recipients and the donors including immunosuppressive therapy, immunological monitoring, diagnostic and therapeutic interventions in patients with allograft dysfunction including renal allograft biopsy and ultrasound evaluation of the allograft.

Candidates will be exposed to:

- **Critical Care Nephrology** Intensive care nephrology including management of electrolyte and acid base problems, CRRT and dialysis of critically ill patients with multiorgan failure.
- **Interventional Nephrology** Various procedures in nephrology including renal ultrasonography, renal biopsy, insertion of peritoneal dialysis catheter and hemodialysis, vascular access and monitoring.
- **Research Posting** During this period, the candidate will complete his on-going research projects and would also familiarize himself/herself with research methodologies with laboratory techniques being carried out in HLA lab, immunofluorescence and EM laboratories and also with routine laboratory investigations being done in the Renal Lab.

Clinical training schedule will include the following:

- Bedside rounds - daily
- Mortality meeting - once a month
- Seminar - once in two weeks
- Grand rounds - once a week
- Journal club - once in week
- Renal histology meeting - once in a month.
- Clinical case discussion - once a week
- Transplant meeting - once in 2 weeks
- Nephro-urology meeting - once a month
- Nephro-radiology meeting - once a month

SYLLABUS

Assessment of Renal Disease

- History and clinical examination of patients with renal disease
- Urinalysis and microscopy
- Clinical assessment of renal function

- Renal function in the newborn infant
- The aging kidney
- Imaging in renal disease
- Renal biopsy
- Immunological investigation of renal disease

Basics

- Embryology of the kidney
- Anatomy of the kidney
- Renal circulation
- Biostatistics
- Research Methodologies
- Solute transport / Both organic and inorganic
- Renal Acidification
- Urine Concentration & Dilution
- Role of kidney in blood pressure regulation
- Endocrine and Autocrine function of the kidney

Pharmacology and Drug

- Handling of drugs in kidney disease
- Drug-induced nephropathies
- Clinical use of diuretics
- Systemic cancer therapies and the kidney

Fluid and Electrolyte Disorders

- Hypo-/hypermnatremia: disorders of water balance
- Hypo-/hyperkalemia
- Hypo-/hypercalcemia
- Hypo-/hyperphosphatemia
- Hypo-/hypermagnesemia
- Clinical acid-base disorders

Epidemiology and Risk Factors

- Epidemiology of kidney disease
- Kidney disease in Indian subcontinents
- Risk factors of CKD
- Nephron endowment
- Aging and kidney disease

Pediatric Nephrology

- Malformation of the kidney
- Fluid, Electrolyte, Acid base disturbance
- Disease of kidney and Urinary track
- Dialysis in Children
- Pediatric Transplantation

Glomerular Disease

- Proteinuria and/or hematuria
- Nephrotic syndrome
- Minimal change disease

- Focal segmental glomerulosclerosis
- Immunoglobulin A nephropathy and Henoch-Schönlein purpura
- Membranous nephropathy
- Mesangiocapillary glomerulonephritis
- Acute endocapillary glomerulonephritis
- Crescentic glomerulonephritis
- Antiglomerular basement membrane (Goodpasture's) disease
- Infection-related glomerulonephritis
- Malignancy-associated glomerular disease
- Glomerular disease in the tropics

The Kidney in Systemic Disease

- Diabetes mellitus
- Amyloid and immunotactoid glomerulopathy
- Plasma cell dyscrasias
- Sarcoidosis
- Systemic vasculitis
- Mixed cryoglobulinemia and hepatitis C infection
- Systemic lupus erythematosus
- Scleroderma-systemic sclerosis
- Rheumatoid arthritis, connective tissue disease, and sjögren's syndrome
- Sickle cell neuropathy
- Cancer and the kidney

Tubular Disease

- Isolated defects of tubular function
- Fanconi syndrome
- Renal tubular acidosis
- Hypokalemia tubular disorders
- Nephrogenic diabetes insipidus

Chronic Interstitial Disease

- Analgesic nephropathy
- Nonsteroidal anti-inflammatory drugs and the kidney
- Nephrotoxic metals
- Balkan nephropathy
- Aristochic acid nephropathy ('Chinese herb nephropathy') and other rare causes of chronic
- interstitial nephritis

Urinary Tract Infection

- Lower and upper urinary tract infection in adults
- Urinary tract infection in children
- Renal tuberculosis or other mycobacterial infections
- Fungal infections and the kidney

Renal Stone Disease

- Medical management of stone disease
- Surgical management of stone disease
- Nephrocalcinosis

- Renal stone disease in children

Acute Kidney Injury (AKI)

- Clinical approach to AKI
- Renal replacement therapies in AKI
- Dialysis and hemoperfusion treatment of acute poisoning
- Glomerulonephritis, vasculitis, and nephritic syndrome
- Acute tubulointerstitial nephritis
- Hemolytic uremic syndrome and thrombotic thrombocytopenic purpura
- Hepatorenal syndrome
- Ischemic AKI
- Pigment-induced AKI
- AKI in tropical countries
- AKI in infants and children
- AKI in preanancy
- AKI in the elderly

Chronic Kidney Disease (CKD)

- Assessment of CKD
- Endocrine disorders in CKD
- Sexual disorders in CKD
- Hypertension in CKD
- Cardiovascular risk factors in CKD
- Gastrointestinal disorders in CKD
- Liver disorder in CKD
- Hematological disorders in CKD
- Skeletal disorders in CKD
- β 2-Microglobulin amyloidosis in CKD
- Immune function in CKD
- Coagulation disorders in CKD
- Dermatologic disorders in CKD
- Neuropsychiatric disorders in CKD

Special Problems in CKD

- CKD in children
- CKD in the elderly
- CKD in diabetic patients
- CKD in pregnancy

Dialysis

- Dialysis strategies
- Vascular access
- Hemodialysis, hemofiltration and hemodiafiltration
- Peritoneal dialysis
- Adequacy of dialysis
- Medical management of the dialysis patient
- Psychological aspects of treatment for renal failure

Renal Transplantation

- Donor & Recipient issues
- Transplantation immunobiology
- Medical & surgical complications following transplantation
- Early management of transplant recipients
- Immunosuppression for renal transplantation

Inherited Renal Disease

- Investigation of inherited renal disease
- Autosomal dominant polycystic kidney disease
- Nephronophthisis
- Alport's syndrome
- Primary hyperoxalurias

Structural and Congenital Abnormalities

- Renal dysplasia
- Vesicoureteric reflux and reflux nephropathy
- Urinary tract obstruction
- Congenital abnormalities of the urinary tract
- Medullary sponge kidney

Maintenance Log Book

Log book (Performance record book):

Maintenance of performance record Log book is mandatory. Certified and assessed copy should be made available at the time of practical examination for review by examiners, Log book should be made contain:

1. Certificate duly signed by teacher, Head of department, Head of Institute stating Dr..... has worked in department from.....to.....for a period of 3 years. This performance record book contains authentic record of work done and assessment for last 3 years.
2. Record of training: Name of the trainee, Name of the Hospital, Training period, Name of teacher.
3. Posting.
4. Working schedule.
5. Teaching programme.
6. Presentation at Journal club: Date, Article Name, Assessment.
7. Seminars: Date, Topic / Subject, Assessment.
8. Case presentation: Date, Teacher's Signature.
9. Death Audit / C PC: Date, Case discussed, Assessment. & Signature.
10. Procedures: Date , Name of patient, Type, Complications observed.
11. Teaching activity: Date, Topic, Class.
12. Participation in Research Activity : name of project, Duration.
13. Conference / Workshop attended paper presentation / Publications.

Publications: Xerox copies or reprints of full paper/ abstracts published or sent for publication in National / International Journals should be submitted to the department before the examination.

RECOMMENDED BOOKS AND JOURNALS:

- Diagnostic Atlas of Renal Pathology, Fogo, Agnes B 7th ED. Elsevier , 2005
- Clinical Dialysis, Nissenson, Allen R, 4th ED. Mc Graw Hill, 2005
- Hypertension companion to to Brenner & Rectors the Kidney, Oparil, Suzanne, 2nd Ed. Elsevier, 2005
- Nephrology Secrets, Brown, David E, 2nd ED. Elsevier, 2003
- Disease of the Kidney & Urinary tract, Schrier, Robert W, 8th ED. Vol I, Lippincott, 2007

- Disease of the Kidney & Urinary tract, Schrier, Robert W, 8th ED. Vol II, Lippincott, 2007
- Disease of the Kidney & Urinary tract, Schrier, Robert W, 8th ED. Vol III, Lippincott, 2007
- Comprehensive Clinical Nephrology, Feehally, John, 3rd ED. Mosby 2007.
- Renal Diseases Prevention and Management: A physicians perspective, Feehally, John, Jaypee Brothers, 2008.
- Seldin and Giebischs the Kidney: Physiology and Pathophysiology, Alpern, Robert. J, Vol I 4th ED. Academic Publisher, 2008
- Seldin and Giebischs the Kidney: Physiology and Pathophysiology, Alpern, Robert. J, Vol II 4th ED. Academic Publisher, 2008
- Comprehensive Pediatrics Nephrology, Geary, Denis. F (ED), 1st ED. Elsevier 2008.
- Evidence-Based Nephrology, Molony, Donald. A, John wiley, 2009
- Handbook of Dialysis, Daugirdas, John. T, 4th ED. Lippincott, 2009
- Manual of Nephrology, Schrier, Robert. W, 7th ED. Lippincott, 2009
- Oxford Handbook of Dialysis, Levy, Jeremy, 2nd ED. Oxford, 2007
- Ganongs Review of Medical Physiology, Barrett, Kim. E (Etal), 24rd ED. Mc Graw Hill, 2012
- Renal Disease Techniques and Protocols, Goligorsky, Michael. S, Humana Press, 2003
- Renal and Electrolyte Disorders, Schrier, Robert. W, 7th ED. Lippincott, 2010
- Acid-Base Disorder and their Treatment, Gennari, John F (Et al), Taylot & Francis, 2005
- Primer on Kidney Diseases, Greenberg, Arthur, 5th ED. Saunders, 2009
- The Kidney, Brenner & Rector - 8th ED. Saunders, 2008
- Critical Care Nephrology, C. Roncu – 2nd ED. Saunders, 2009.
- Oxford desk Reference Nephrology, Jonathan Barratt, Kevin harris, Peter Topham, 1st Indian ED, 2009.

JOURNALS

International

- Transplantation
- Kidney International
- Hemodialysis International
- Clinical Journal of the American Society of Nephrology

Indian

- Indian Journal of Nephrology

Online Journals

- BMC Nephrology
- Clinical and Experimental Nephrology
- International Urology and Nephrology
- Journal of Artificial Organs
- Hong Kong Journal of Nephrology
- Clinical Queries: Nephrology
- Journal of American society of Hypertension
- Journal of Cardiothoracic- Renal research
- Indian Journal of Transplantation
- Pediatric Nephrology

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MODEL PAPER

Neph.-I

**DM Examination Month, Year
NEPHROLOGY**

Paper I
Basic Sciences : Principles of Nephrology

Time : Three Hours
Maximum Marks : 100

Attempt all questions
All questions carry equal marks (**10 marks each**)
Draw diagrams wherever necessary

- Q.1 How do you investigate a patient suspected to have renal tubular acidosis, outline the management of type 1 renal tubular acidosis?
- Q.2 Role of protein restriction in dietary management of chronic kidney disease stage IV, write out the diet for a 55 year old male with stage 4 chronic kidney disease, who is not a diabetic
- Q.3 What is tubular maximum, define renal glycosuria and its clinical implications?
- Q.4 Factors affecting glomerular filtration rate, what are the methods available to estimate it?
- Q.5 Mode of action and indications for the use of Metolazone.
- Q.6 Genetics of polycystic kidney disease and the implications of this.
- Q.7 Indications for the combined use of angiotensin converting enzyme inhibitors and angiotensin receptor blockers advantage or not.
- Q.8 What are the prognostic factors in a case of IgA nephropathy?
- Q.9 Role of fish oil in management of renal diseases.
- Q.10 What is the fractional excretion of sodium, its diagnostic significance?

DM Examination Month, Year
NEPHROLOGY

Paper II
Clinical Nephrology including Paediatric Nephrology

Time : Three Hours
Maximum Marks : 100

Attempt all questions
All questions carry equal marks (**10 marks each**)
Draw diagrams wherever necessary

- Q.1 What is pseudohyperkalemia? What are the manifestations of acute hyperkalemia and how do you treat this?
- Q.2 How would you investigate a case suspected to have diabetes Insipidus? What is the differential diagnosis?
- Q.3 What is the current opinion on the role of Dopamine in acute kidney Injury?
- Q.4 What are the RIFLE and AKIN classification? What is the difference between the two and advantages of each?
- Q.5 Describe the kidney lesions seen with malarial infection.
- Q.6 What is the abnormal serology and pathology seen in the kidney in Wegners Granulomatosis? How is the condition treated?
- Q.7 What is Shohl's solution? What is its composition and indications for its use?
- Q.8 What are direct renin inhibitors? What is the advantage of using it over converting enzyme inhibitors or angiotensin receptor blockers?
- Q.9 What is e GFR? What is its importance? What are the common methods of estimating e GFR?
- Q.10 What is Masugis nephritis? How is it produced and what is the human equivalent?

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MODEL PAPER

Neph.-III

**DM Examination Month, Year
NEPHROLOGY**

Paper III
Diagnostic and Therapeutic Nephrology including Intervention

Time : Three Hours
Maximum Marks : 100

Attempt all questions
All questions carry equal marks (**10 marks each**)
Draw diagrams wherever necessary

- Q.1 Use of citrate for hemodialysis. What are the indications and precautions? How is it done?
- Q.2 Wilhelm Kolff and his contributions to care of patients with kidney disease.
- Q.3 Use of plasma exchange in nephrology.
- Q.4 Hanta virus and renal lesions associated with this infection.
- Q.5 Renal lesions seen with Mycobacterium leprae infection.
- Q.6 What are the variants of focal segmental glomerulosclerosis? Discuss the prognosis after kidney transplant in a patient with this condition.
- Q.7 Use of Tacrolimus for non organ transplant situations and efficacy.
- Q.8 What predisposing factors, clinical features, histology, treatment and Outcome of Atheroembolic renal disease?
- Q.9 Classification of vasculitis. What are the Clinical features, laboratory investigations and treatment of Churg Strauss disease?
- Q.10 How do you evaluate a highly sensitized recipient for a kidney Transplant? Add a note on pre surgery treatment and postoperative follow up.

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MODEL PAPER

Neph.-IV

**DM Examination Month, Year
NEPHROLOGY**

Paper IV
Recent Advances in Nephrology

Time : Three Hours
Maximum Marks : 100

Attempt all questions
All questions carry equal marks (**20 marks each**)
Draw diagrams wherever necessary

Write on :

- Q.1 Use of stem cell therapy in Nephrology.
- Q.2 What is Microinflammation? What is the evidence for its role in chronic kidney disease?
- Q.3 Use of Bortezomib in Nephrology.
- Q.4 Enumerate podocyte disorders and write briefly on the Finnish type of congenital nephritic syndrome.
- Q.5 The role of therapeutic drug monitoring in the management of a kidney transplant recipient.