

### CLINICAL NEPHROLOGY, DIALYSIS, TRANSPLANTATION.

1. Describe the role of paraproteinaemias in the causation of renal diseases and discuss the mechanisms involved.
2. Discuss the pathogenesis of pregnancy induced hypertension. Describe its clinical features, management and prevention.
3. Write briefly on:
  - a. Low turnover bone disease
  - b. Nonuraemic indications for dialysis
  - c. Rifampicin associated acute renal failure
  - d. Antineutrophil cytoplasmic antibodies
  - e. Hypertension due to unilateral renal parenchymal disease.

### ESSAY QUESTIONS

1. Describe in detail each of the continuous forms of haemodialysis continuous form of haemodialysis highlighting the difference between them and indications for each of them.
2. Discuss in detail the factors that determine long term allograft survival and risk factors for late allograft failure.

### RECENT ADVANCES:

1. Describe the inheritance, clinical features renal histology and management of Alports syndrome.
2. Discuss the pathogenesis, pathology and management of acute renal failure following snake bite.
3. Write briefly on:
  - a. Lupus anticoagulant
  - b. Significance of bacterial colony counts in urinary tract infections
  - c. Management of the highly sensitized renal transplant recipient
  - d. Renal involvement in primary gout
  - e. Emphysematous pyelonephritis.
1. Erythropoietin resistance
2. Athero Embolic Renal Disease
3. Systemic inflammatory response syndrome
4. ACE gene polymorphism clinical implications
5. De Novo glomerulonephritis in renal allograft
6. Artificial Renal Tubule.
7. Recurrent FSGS-Mechanisms and implications
8. Meta analysis in renal therapeutics-basic principles and their contributory role
9. Polymerase chain reaction

10. Radio-isotopes of diagnosis of renal diseases.

### CLINICAL NEPHROLOGY, DIALYSIS TRANSPLANTATIONS

1. Describe clinical features, etiopathogenesis management of prevention of peritonitis in patients on ambulatory peritoneal dialysis.

2. Describe the clinical manifestations, pathogenesis, histology and management of IgA nephropathy.

3. Write briefly on:

- a. Interleukin- 2 receptor antagonists
- b. Haemostatic disturbances in chronic renal failure.
- c. Value of ambulatory blood pressure monitoring.
- d. Extra renal manifestations of antidotal dominant polycystic kidney disease
- e. Renal involvement in lymphoma.

### BASIC SCIENCES:

1. Classify diuretics according to their sites and mechanisms of action. Discuss the causes and management of diuretic resistance.

2. Describe the determinants of the glomerular filtration rate. Discuss the advantages and disadvantages of the various methods used to determine the glomerular filtration rate.

3. Write briefly on:

- a. Management of hypocalcaemia
- b. Medullary cystic disease
- c. Contrast medium induced acute renal failure
- d. Renal aqua Orin
- e. Renal involvement in progressive systemic sclerosis.

### RECENT ADVANCES:

1. Describe the BANFF 1997 working classification of renal allograft pathology and discuss the differences between this and previous Banff classifications.

2. Describe the clinical manifestations, pathogenesis, pathology and management of human immunodeficiency virus associated nephropathy.

3. Write briefly on:

- a. Transplant renal artery stenosis.
- b. Role of transforming growth factor- $\beta$  (TGF -  $\beta$ ) in diabetic nephropathy

- c. Assessment of dry weight in patients on dialysis.
- d. Genetic determinants of hemolytic uremic syndrome.
- e. Iron therapy in patients with chronic renal failure.

#### ESSAY QUESTIONS

1. Describe the etiology, pathogenesis, manifestations, laboratory diagnosis and management of tubulo-interstitial nephritis.
2. Describe the clinical manifestations, pathogenesis, radiologic findings, pathology management and prevention of the various forms of bone disease seen in patients with chronic renal failure.

#### CLINICAL NEPHROLOGY DIALYSIS TRANSPLANTATION

1. Describe the genetics, pathogenic manifestations and diagnosis of autosomal-dom polycystic kidney.
2. Discuss the role of serology in the diagnosis glomerular and vascular disease.
3. Write briefly on:
  - a. Postpartum acute renal failure
  - b. Cryoglobulinemic glomerulonephritis
  - c. Xanthogranulomatous pyelonephritis.
  - d. Post transplant hypertension
  - e. Acute renal failure in malaria.

#### BASIC SCIENCES;

1. Describe the factors and mechanisms involved in renal handling of magnesium. Mention the causes and manifestations of hypomagnesaemia.
2. Describe the structure and function of the glomerulus's, describe the methods for measurement of glomerular filtration rate,
3. Write briefly on:
  - a. Urine anion gap
  - b. Asymptomatic bacteriuria
  - c. Bartter's syndrome
  - d. Demonstration of vesicoureteric reflux and reflux nephropathy.
  - e. Radiocontrast media nephrotoxicity.

#### NEPHROLOGY INVESTIGATIONS AND RECENT ADVANCES

1. Discuss diagnostic interpretations, course and management of a young boy with hematuria who renal biopsy shows mesangial cell proliferation.

2. Describe etiology, clinical features laboratory picture and management of a case of hypokalemic nephropathy.

3. Discuss briefly:

- a. Mechanism of hyperlipidemia in nephritic syndrome.
- b. Diabetes-Hypertension relationships.
- c. Dietary treatment of chronic renal failure.
- d. Plant Nephrotoxins
- e. Metabolic effects of cyclosporine.

#### CLINICAL NEPHROLOGY

1. Describe clinical manifestations, laboratory tests and management of aluminium toxicities in ESRD patients.

2. Discuss investigations in a case of death during dialysis and suggest remedial measures.

3. Write short notes on:

- a. Benign familial hematuria and its investigations
- b. Acute renal failure in intensive Care Unit.
- c. ANCA – related renal disease
- d. Congenital Nephritic Syndrome
- e. Lead Nephropathy.

1. Discuss the management of Vesicoureteric reflux up to the age of five years.

2. Discuss the management of Post Renal Transplant Fungal Infections seen in India.

3. Write briefly on:

- a. The lipid abnormalities in Nephrotic states.
- b. Use of Dietary Fish Oil in Proteinuria states.
- c. Atrial natriuretic peptide in acute renal failure.
- d. Role of continuous Ambulatory peritoneal Dialysis (CAPD) in children with Chronic renal failure.
- e. Bartter's Syndrome.

#### BASIC SCIENCE NEPHROLOGY:

1. Discuss Water pre-treatment for Haemodialysis.

2. Discuss Renal Handling of Sodium



3. Write short notes on:

- a. Role of Oxygen free radicals in transplant Rejection.
- b. Captopric Reno gram in the Diagnosis of Reno vascular Hypertension
- c. Councilman Nephritis.
- d. Phase contrast Microscopic Examination of Urine.
- e. Non-Invasive Technique in the Diagnosis of Amyloidosis.

### NEPHROLOGICAL INVESTIGATIONS AND RECENT ADVANCES

1. Discuss the role of anca in the management of vacuities.
2. Discuss the recent advances in the treatment of Lupus glomerulo nephritis.
3. Write short notes on:

- a. Histology of renal megaloplakia
- b. Role of prostrate specific antigen
- c. Extra renal effects of cyclosporine A on potassium homeostasis
- d. Glomerular cell culture
- e. FK 506

### ESSARY QUESTIONS:

1. Describe in detail, the causation the diagnostic investigations and the available treatment options for renal bone disease.
2. Describe in detail the problems that may be encountered while organizing a cadaver transplant programme in India and suggest possible solutions for the same.
3. Describe in detail the problems encountered and their management in a pediatric patient with chronic renal failure.
4. Discuss treatment strategies and prognostic factors in idiopathic membranous nephropathy
5. Write briefly on:
  - a. Reprocessing hemodialysis
  - b. Scleroderma and the kidney
  - c. Renal involvement in Hepatitis C
  - d. ACE gene polymorphism
  - e. Dclizumab.
5. Discuss the pathogenesis of edema in various forms of renal disease.

6. Describe the etiology, pathogenesis, clinical manifestations and management of metabolic alkalosis.

7. Write notes on:

- a. Role of complement in the pathogenesis of glomerular disease.
- b. Anatomy of the Juxta-glomerular apparatus
- c. Inhibitors of stone formation
- d. Drugs that alter the serum potassium level
- e. Countercurrent multiplier system.

8. Describe the clinical manifestations of chronic uremia, Discuss the conservative management of chronic renal failure.

9. Discuss the pathogenesis of diabetic nephropathy. Describe the stages of nephropathy in insulin dependent and non insulin dependent diabetics. Discuss the primary and secondary prevention of nephropathy.

10. Discuss in detail the current concepts of divalent ion metabolism in ESRD and role of intravenous Calcitriol in the management of End Stage Renal Disease (ESRD)

11. Briefly describe the following:

- a. Role of cytokines in Renal Disease
- b. Significance of micro albuminuria
- c. Endothelium derived relaxing factor (EDRF)
- d. The role of Cell adhesion molecules in glomerulo nephritis.
- e. Anti endothelial cell antibody.

12. Briefly describe the following:

- a. Etiopathogenesis clinical presentations and outcome of IgA nephropathy.
- b. Path physiology of the hepatorenal syndrome
- c. Dialytic support for chronic renal failure during pregnancy.
- d. Etiology, clinical presentations and diagnosis of ischemic renal disease
- e. Renal transplantation in childhood determinants of graft survival
- f. Hyperinsulinemia, insulin resistance and hypertension
- g. Post transplant polycythemia
- h. Candida infection of the urinary tract
- i. Therapeutic measures to retard progression of diabetic nephropathy
- j. Renal side effects of non steroidal anti-inflammatory drugs

13. Briefly describe the following:

- a. Atrial natriuretic peptide.
- b. Renal changes in septic shock and its management

- c. Path physiology of reperfusion cell injury
- d. Masugi nephritis
- e. Endothelins
- f. Net acid excretion by kidneys
- g. Long term complications in hemo dialysis patients.
- h. Renal histological changes in multiple myeloma
- i. Mixed lymphocyte culture
- j. Xeno transplantation, its limitations and prospects.

**14. Briefly describe the following:**

- a. Etiopathogenesis and incidence and management of hospital acquired acute renal failure.
- b. Laboratory diagnosis of (i) primary hyperparathyroidism and diagnosis of (ii) renal failure secondary to hyperparathyroidism.
- c. Renal involvement in progressive systemic sclerosis.
- d. Diagnosis and management of urinary tract infections in adult males.
- e. Dialysis induced amyloidosis
- f. Glucose and insulin metabolism in chronic renal failure
- g. Hepatic complications following renal transplantation
- h. Pathogenesis, Prevention and management of hyperkalemia in chronic renal failure.
- i. Etiopathogenesis, management of renal vein thrombosis
- j. Natural history of idiopathic membranous nephropathy and its modification by therapy.

**15. Discuss the pathogenesis, investigations and management of cases of acute and subacute renal failure with jaundice.**

**16. Briefly describe the following:**

- a. Omega 3-fatty acids
- b. Precipitation-clacification hypothesis
- c. Use of Signal Transduction in Nephrology
- d. T cell antibodies in renal transplantation
- e. Crystal induced arthropathy in uremia.

**17. Discuss in detail the procedure for renal transplantation in a sensitized recipient.**

**18. Briefly describe the following :**

- a. Acquired Renal tubular acidosis
- b. HIV associated Nephropathies
- c. Organ sharing system in Renal transplantation
- d. Mechanism of Nephro toxicity of NSAIDS
- e. Membrane bio-compatibilty in haemodialysis

**18. Briefly describe the following:**

- 1 Renal histological lesions in the hemolytic uremic syndrome and their prognostic significance.



2. Glomerular collagens in Alport's syndrome.
3. Hyperchloremic metabolic acidosis
4. Post-obstructive diuresis
5. Cytomegalovirus infection following renal transplantation.
6. Percutaneous transluminal renal angioplasty
7. Pathogenesis of secondary hyperparathyroidism in chronic renal failure.
8. Continuous ambulatory peritoneal dialysis in India feasibility potential scope and problems.
9. Management of vesicoureteral reflux in childhood
10. Treatment of minimal change nephropathy.

19. Discuss in detail the procedure for renal transplantation in a sensitized recipient.

20. Briefly describe the following:

- a. Acquired renal tubular acidosis.
- b. HIV associated Nephropathies
- c. Organ sharing system in Renal Transplantation
- d. Mechanism of Nephro toxicity of NSAIDS
- e. Membrane bio-compatibility in haemodialysis.

21. Briefly describe the following:

- a. Malignancy associated glomerular disease.
- b. Extra-renal complications of the nephritic syndrome
- c. Renal involvement in leptospirosis
- d. Sexual dysfunction in chronic renal failure
- e. Nutritional management in acute renal failure
- f. Gas tic alkalosis
- g. Nephrocalcinosis
- h. Role of ambulatory blood pressure monitoring in the diagnosis and management of hypertension.
- i. Dialysis membrane biocompatibility
- j. Cadaver renal transplantation current problems and therapeutic approaches.

22. Describe the anatomy and physiology of renal glomerulus and briefly discuss its clinical relevance.

23. Briefly:

1. Handling of drugs by the kidney
2. Dialysis membranes and biocompatibility
3. Hyper viscosity syndrome.
4. Renal changes in Diabetes Mellitus
5. Immune deregulation in S.L.E.

23. Discuss the role of kidney in hypertension and briefly describe the renal changes in malignant hypertension.

24. Briefly:



- a. Determinants of glomerular ultrafiltrate and proteinuria.
  - b. Pathogenesis of radio contrast induced renal failure and its prevention.
  - c. HLA system and its role in transplantation.
  - d. Physio chemical factors in urolithiasis.
  - e. Renal histological changes in:
    - 1. Ethylene glycol poisoning
    - 2. Gold nephrotoxicity.
25. 1. Role of cytokines in progression of renal disease.
- 2. Endothelin in renal disease
  - 3. Superiority of CAV HD over CAVH
  - 4. Preval of hepatitis C in renal allograft recipient and its importance.
  - 5. Vaccination in haemodialysis.
  - 6. Role of monoclonal Abs in of renal Tx
    - 7. Current strategy of Lupus nephritis and vacuities.
  - 8. Fibrillary glomerulo nephritis Histology and clinical features.
  - 9. Advantages of CSA over other immunosuppressive drugs in Treatment of idiopathic NS.
  - 10. Factors irresponsible for decreased response to EPO therapy.
26. Discuss the renal functional changes and renal pharmacokinetics in the elderly. Describe their clinical importance especially in relation to the management of pathological states in such subjects
27. Briefly describe the following:
- a. Genesis of renal oedema.
  - b. Renal physiology of pregnant state.
  - c. Immunotactoid glomerulopathy
  - d. Value of radio-nuclide imaging techniques in nephrology
  - e. Bartter's syndrome.

AUGUST 1995

Briefly describe:

- a. Morphology of the juxtaglomerular apparatus and secretory mechanisms of rennin
- b. Pathogenic role of Lupus anticoagulants and anticardiolipin antibodies.
- c. Mechanisms of antihypertensive actions of ACE-inhibitors.
- d. Osmoregulation by antidiuretic hormone.
- e. T cell antibodies as immunosuppressive agents.
- f. Microalbuminuria and its predictive value for diabetic nephropathy
- g. Future prospects of Xenotransplantation
- h. Faloparum malaria and renal injury
- i. Metabolic disturbances and renal injury due to methyl alcohol ingestion
- j. Diagnostic value of antineutrophilic cytoplasmic antibodies, (ANCA) in glomerulopathy.

#### PAPER II

- a. Radionuclide studies in a renal transplant recipient.
- b. Pathogenesis of minimal change disease
- c. Role of calcium channel blockers in preventing the progression of diabetic nephropathy.
- d. Pregnancy in women with systemic lupus erythematosus.
- e. Evolution of acquired renal cystic disease after transplantation.
- f. Management of venous stenosis of access for circulation for hemodialysis.
- g. Prognostic features of adult idiopathic mesangio capillary glomerulopathies.
- h. BANFF classification of renal graft histology
- i. Interferon therapy for HBV associated membranous nephropathy
- j. Catheter survival in CAPD patients.

#### PAPER III

1. What are the features that help to distinguish secondary focal segmental glomerulosclerosis (FSGS) from idiopathic FSGS? Discuss the different morphologic variants, pathogenesis and treatment of idiopathic FSGS.
2. Briefly describe the following:
  - a. Assessment and Management of malnutrition in hemodialysis.
  - b. Etiopathogenesis of hemolytic uremic syndrome
  - c. Pathophysiology and diagnostic uremic syndrome
  - d. Nonimmune causes of late graft loss.
  - e. Genetic diagnosis of Autosomal dominant polycystic kidney disease.

1996

1. Discuss the pathophysiology of primary renal tubular acidosis.
2. Briefly describe the following:
  - a. Atrial natriuretic hormone
  - b. Pathology of human immunodeficiency virus associated glomerulosclerosis
  - c. Criteria for determining brain stem death
  - d. Effect of intravenous calcitriol on insulin resistance
  - e. Mycophenolate mofetil (MMF)
3. Discuss the role of parathyroid hormone (PTH) as a uremic toxin
4. Briefly describe the following:
  - a. Principles of prescription of drug in severe renal failure.
  - b. Host defence mechanisms against urinary tract infections.
  - c. Pharmacologic agents used with organ preservation solutions.
  - d. Definition, significance and management of micro albuminuria
  - e. Acute myeloma kidney (AKI in Myeloma)
5. Discuss the role of molecular genetics in hereditary renal diseases.



6. Briefly describe the following:

- a. Diagnosis of renovascular hypertension
- b. Use of urinary electrolytes in the differentiation of clinical renal disorders.
- c. Banff classification for histological diagnosis of renal allograft rejection
- d. Treatment of diffuse proliferative lupus nephritis.
- e. Water treatment for hemodialysis unit.

**1996 August:**

1. Discuss the diagnostic role of various serological tests in renal disease.

2. Briefly describe the following:

1. Biology of normal peritoneal membrane
2. Hypertensive tests
3. Neuronal control of urinary bladder and its outlet
4. Metabolic alkalosis
5. Role of Mycophenolate mofetil as an immunosuppressant.

3. A patient receives a renal transplant, and passes urine freely from the time the clamps are released. 6 hours later, he becomes oliguric. What are the possible causes and the mechanisms by which they produce oliguria? How will you investigate him? what treatment will you offer?

- a. The treatment of the hemolytic uraemic syndrome.
- b. The approach to a patient with hypotension during haemodialysis.
- c. The causes, clinical features, and management of acute uric acid nephropathy.
- d. The diagnosis of renal artery stenosis
- e. The prevention of recurrent calcium stone formation.

5. Discuss the indications for lipid lowering therapy in patients with renal disease. Classify lipid lowering drugs and mention their side effects.

- a. Diuretic scintigraphy
- b. Risk factors for chronic rejection of renal allograft.
- c. 11-B hydroxysteroid dehydrogenase deficiency and hypertension.
- d. New markers for determination of Glomerular filtration rate.
- e. Treatment of Membranous nephropathy.

**1997 NEPHROLOGY**

Briefly the following:

- a. Role of epithelial sodium channel in sodium homeostasis and control of blood pressure
- b. Advanced glycosylation in diabetic nephropathy
- c. Occupational renal disease
- d. Role of heparins in therapy of proliferative glomerular diseases.
- e. Endothelins in kidney disease

- f. Nitric oxide and acute renal failure.
- g. Role of proteinuria in progression of chronic renal disease
- h. Pump defects in distal renal tubular acidosis.
- i. Renal effects of non-steroidal anti-inflammatory drugs.
- j. Association between angiotensin converting enzyme gene polymorphism with renal disease outcome.

**Write short notes on:**

- a. Diagnostic utility of dysmorphic RBCs in urine.
  - b. Management of atherosclerotic renal artery stenosis.
  - c. Renal medulla in ischemic acute renal failure.
  - d. Management of oxalosis
  - e. Dialysis disequilibrium – pathogenesis and prevention.
  - f. Braking phenomenon during diuretic use.
  - g. Measuring bone mineral content – Methods and utility.
  - h. Bladder defence mechanisms against bacterial infection
  - i. Pathology of light chain nephropathy.
  - j. Growth hormone therapy in children after renal transplantation.
1. Discuss the causes of pneumonitis in a renal transplant recipient
- a. Less than 1 month
  - b. 1-4 months after transplantation
  - c. More than 4 months after transplantation.
- Also discuss the specific therapy for each condition.

**2. Describe briefly :**

- a. Role of atrial natriuretic peptide
- b. Pathophysiology of hypotension during dialysis
- c. Causes and mechanism of uric acid crystalluria and uric stone formation.
- d. Describe the etiopathogenesis of hypertension accruing during pregnancy  
Which antihypertensive occurring would be preferable in a pregnant woman
- e. Recurrence of glomerular disease following renal transplantation. What is the incidence of graft loss due to recurrent glomerular disease.

**Briefly describe:**

- a. Methods used for evaluation of effectiveness and patient outcome of interventions for renal disease.
- b. Markers and pathogenesis of diabetic nephropathy
- c. Adhesion molecules in renal ischaemia, reperfusion and tubular regeneration
- d. Role of MHC peptides in renal immunomodulation
- e. Urea kinetic modeling and hemodialysis qualification
- f. Genetic defects, tubulogenesis and renal cyst formation
- g. Coagulation abnormalities and renal lesions in pre-eclampsia/eclampsia
- h. Aquaporins and nephrogenic diabetes insipidness



- i. Renal disease and drug abuse.
- j. Progressive hypertensive nephrosclerosis.

**Write short notes on:**

- a. Lympho-proliferative disorders following renal transplantation – pathology and pathogenesis.
- b. Reversible renal failure in IgA nephropathy Pathogenesis and Management.
- c. Therapeutic options in focal segmental glomerulosclerosis.
- d. Leptospiral acute renal failure – Pathogenesis and Management.
- e. Factors influencing peritoneal solute transport.
- f. Pathology of idiopathic aorto-arteritis.
- g. Evidence for the intact nephron hypothesis.
- h. Glomerular filtration rate in the post – obstructive period – Mechanisms of regulation.
- i. Diagnosis of autosomal dominant polycystic kidney disease.
- j. Radio-contrast nephropathy – Pathogenesis and prevention.

- 1. Discuss the management of cardiac disease in chronic uremia with particular reference to:
  - a. Risk factor intervention
  - b. Uremia related intervention

**2. Describe related intervention:**

- a. MRI angiography in renal disease
- b. Effect of rh-Epo on the endocrinal abnormalities in uremia.
- c. 15 – Deoxyspergualin
- d. High Flux dialyzer
- e. Magnesium homeostasis.

**NEPHROLOGY 1998**

**1. Write short notes on:**

- a. Genetic basis of inherited glomerular basement membrane disorders.
- b. Idiopathic hypercalciuria
- c. Anatomy of the juxtaglomerular apparatus.
- d. Laboratory assessment of urinary acidification
- e. Synthesis of calcitriol and its regulation.
- f. Significance of bacterial colony counts in urinary tract infections.
- g. Etiopathogenesis of syndrome of inappropriate secretion of antidiuretic hormone.
- h. Renal involvement in progressive systemic sclerosis.
- i. Role of complement in pathogenesis of glomerular disease
- j. Juvenile nephronopthisis.

2. Write short notes on:

- a. Clinical features and diagnosis of acute cortical necrosis in abruption placentae.
- b. Causes and implications of delayed graft functions after renal transplantation.
- c. Diagnosis and management of acute salicylate intoxication.
- d. Clinical manifestations and pathology of HIV associated nephropathy.
- e. Urinary anion gap and its clinical utility.
- f. Thin basement membrane disease.
- g. Assessment of adequacy of dialysis in CAPD.
- h. Special problems of renal transplantation in children.
- i. Indications and choice of antihypertensive drugs during pregnancy.
- j. Diagnosis and treatment of thrombotic microangiopathy.

3. Write short notes on:

- a. Clinical utility of angiogenesis II receptor antagonists.
- b. Drugs affecting serum potassium levels and mechanism of their effect.
- c. Newer strategies for prevention of acute tubular necrosis.
- d. Morphological patterns and prognostic markers of IgA nephropathy.
- e. Diagnosis of renal tuberculosis.
- f. Immunology and histopathology of renal vasculitis.
- g. Clinical presentation and non invasive tests for diagnosis of ischemic nephropathy.
- h. Diagnosis of dialysis related amyloid and effect of renal transplantation on this lesion.
- i. Diagnosis and treatment of venous occlusion of a hemodialysis access.
- j. Xenotransplantation – problems and future

1998 AUGUST

4. Write short notes on:

- a. Genetic basis of cystic kidney disease
- b. Endogenous inhibitors on stone formation
- c. Laboratory multiplier system
- d. Countercurrent multiplier system
- e. Drugs that alter the serum potassium level and mechanisms of this effect.
- f. Antineutrophil cytoplasmic antibodies: diagnostic and pathogenetic role in vasculities.
- g. Angiotension receptor antagonists
- h. Renal involvement in primary gout.
- i. Diagnostic utility of radioisotope scans in native renal parenchymal disease.
- j. Bartter's Syndrome.

5. A patient with multiple myeloma presents with acute renal failure. What investigations would you perform, and why? How would you treat the different possible causes?

6. Write short notes on:

- a. Pulse calcitriol therapy.
  - b. The hepatitis C virus and the kidney
  - c. Clinical manifestations of IgA nephropathy
  - d. Indications for, mechanisms of and use of diuretics in calcium disorders.
  - e. The pathogenesis of focal and segmental glomerular sclerosis.
- 7.
- a. Uses and limitations of serum creatinine in estimation of GFR.
  - b. Therapeutic approaches to thrombotic microangiopathy.
  - c. Interleukins in minimal change disease
  - d. Lipoprotein glomerulopathy.
  - e. Cis-Platinum nephrotoxicity and its prevention.
  - f. Immunochemistry and molecular genetics in the diagnosis of Alport's Syndrome.
  - g. Factors accounting for stunting of growth in CRF and role of recomb growth hormone.
  - h. Assessment of adequacy of CAPD and measures to improve it.
  - i. Mycophenolate mofetil
  - j. Gene therapy in renal medicine.

FEBRUARY 1999

1. Write short notes on:

- a. Tolerance in relation to renal Transplantation.
  - b. Genetic basis of Nephrogenic insipidus.
  - c. Pathogenesis of hyponatremia.
  - d. Mechanisms of acute renal failure due to sepsis
  - e. Pathology of kidney in Hemolytic uremic syndrome.
  - f. Molecular basis for newer therapies in Lupus nephritis
  - g. Transforming Growth factor  $\beta$ 1 in diabetic Nephropathy
  - h. Angiotensin II receptor antagonists in renal disease.
  - i. Methods of measurement of Glomerular filtration rate.
  - j. Ischemic Nephropathy
- 2.
- a. Renal involvement in falciparum malaria.
  - b. Microalbuminuria in essential hypertension
  - c. Hypokinetic uremic osteodystrophy.
  - d. Pathogenesis and management of "Idiopathic" odema
  - e. Acute renal failure in Bone marrow transplantation.
  - f. Resistance to Erythropoietin therapy.

- g. Hypotension during haemodialysis.
  - h. Apoptosis in renal disease.
  - i. Diagnostic significance of hypocomplementemia.
  - j. Asymptomatic Bacteriuria.
3. Write short notes on:
- a. Noncalcemic analogues of vitamin D.
  - b. Ultrafiltration in ambulatory peritoneal dialysis.
  - c. Mycophenolate mofetil.
  - d. Value of ambulatory blood pressure monitoring.
  - e. Methods and complications of dialyser reuse.
  - f. Pathogenesis and management of hemostatic disturbances in chronic renal failure.
  - g. Definition and causes of late allograft failure.
  - h. Post transplant erythrocytosis.
  - i. Renal mucormycosis.
  - j. Pathogenesis of diabetic nephropathy.
4. a. The mesangium
- b. Factors influencing renal handling of magnesium.
  - c. Renal involvement in multiple myeloma.
  - d. Complement regulatory proteins.
  - e. Cystatin C.
  - f. Pathogenesis of shiga toxin associated hemolytic uremic syndrome.
  - g. T helper lymphocyte subsets.
  - h. Mechanisms of action of ACE inhibitors in proteinuric states
  - i. Host defence mechanisms against urinary tract infection.
  - j. Renal applications of 3D CT – angiography.
5. Describe the principles of drug therapy in patients with renal failure and describe briefly the dosage of following drugs in patients on dialysis.
- i. Anti tubercular drugs
  - ii Anti hypertensives
6. Write brief short notes:
- a. Leptin in chronic renal failure.
  - b. Treatment of idiopathic membranous nephropathy
  - c. Renal histological changes in
    - i. Eclampsia
    - ii. Snake bite
    - iii. Malignant hypertension
  - d. Management of acute peritonitis in CAPD patients.
  - e. Evaluation of a cadaver for organ donation



**7. Write short notes on:**

- a. Persistence of secondary hyperparathyroidism after renal transplantation.
- b. Use of bicarbonate versus lactate as buffer in continuous ambulatory peritoneal dialysis solutions.
- c. Isolated systolic hypertension in the elderly.
- d. Histological criteria for diagnosis and grading of acute rejection.
- e. Use of Basiliximab in renal transplant recipients.
- f. Growth hormone therapy in patients with chronic renal failure.
- g. New generation tests for diagnosis of cytomegalovirus infection in transplant recipients.
- h. Revascularization in atherosclerotic renal artery disease.
- i. Nutritional management of patients with chronic renal failure.
- j. Strategies for prevention of diabetic nephropathy.

8. Discuss the role of various mediators in immunologically mediated renal injury?

**2. Write short notes on:**

- a. Infection localizing tests in urinary tract infection.
- b. Angiotension and developmental anomalies of the kidney and the urinary tract.
- c. Micro-albuminuria
- d. Renal pathology of:
  - i. Thrombotic thrombocytopenic purpura
  - ii. Post streptococcal glomerulonephritis.
- e. Measurement of urinary protein.

1. Discuss the current concepts of Renal Bone Diseases.

**2. Write short notes on:**

- a. Progression of Renal Disease
- b. Present status of Diabetic Nephropathy
- c. Long term complications of dialysis
- d. Metabolic alkalosis.
- e. Target Hemoglobin in the EPO era in patients of chronic renal failure.

**3. Write short notes on:**

- a. Serological tests in Glomerular diseases.
- b. Non-infectious post renal transplant complications.
- c. Treatment of ARF in the Intensive care Units.
- d. Adequacy of peritoneal dialysis and long term outcome of CAPD
- e. Bioartificial Renal Tubule.

- f. Chronic rejection in Renal Transplant.
- g. Role of prophylactic antibiotics in Renal Transplant.
- h. Xenotransplantation, current status and future prospects.
- i. Hepatitis C virus infection in glomerular disease.
- j. Value of nuclear imaging in Nephrology.

## NEPHROLOGY

1. Describe the natural history, pathogenesis and treatment of diabetic nephropathy.
2. Write short notes on the following:
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  - e. Focal segmental glomerulosclerosis.
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  - g. Continuous renal replacement therapy
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  - j. Diagnosis & management of methanol poisoning.
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4. Ischemic nephropathy: Pathogenesis.
5. Hereditary renal tubular acidosis.
6. Etiopathogenesis of dialysis disequilibrium syndrome.
7. Small solute clearance & PD adequacy.
8. Genetics of Polycystic Kidney disease in adults.
9. Calcineurin inhibitor avoidance in renal Tx-Immunosuppression.
10. Plasmapheresis in TTP- HUS.



## D.M. DEGREE EXAMINATION

### Question Papers

#### A. Essay question:

1. Discuss in detail about the long term management of Hepatitis B and Hepatitis C infected renal allograft recipient.
2. Discuss the differential diagnosis, investigations and management of pediatric hypertension.

#### B. Short notes on:

1. Hepato renal syndrome
  2. Cerebral salt wasting syndrome
  3. Cast nephropathy
  4. Sterile peritonitis
  5. Organ preservation
  6. Obstetric Acute Renal Failure
  7. Cardio vascular risk intervention in End stage renal disease
  8. Medical management of Renal Stone disease
  9. Tertiary prevention of diabetic nephropathy
  10. Peritoneal equilibrium test.
3. Discuss about the planning and developing a transplant coordination model in your centre. Discuss the legal and ethical issues of cadaver organ donation in India.
  4. Discuss the history, principles, complications and recent advances in haemodialysis therapy.

#### 5. Short notes on:

1. Phosphatonins
  2. Vasopeptidase inhibitors
  3. Glucose toxicity in CAPD
  4. Pure red cell aplasia
  5. NESP – Novel Erythropoietin Stimulatory Proteins
  6. Renal transplantation across blood group
  7. Dialysis for inborn errors of metabolism
  8. X-linked renal related syndromes
  9. Adhesion molecules
  10. Transplantation tolerance.
6. Discuss in detail of recent advances in the pathogenesis and management of Lupus Nephritis.
  7. Discuss the recent advances in the pathogenesis and management of Renal



**Short notes on:**

1. Polyoma virus Nephropathy.
2. Newer immunosuppressive agents.
3. Tissue Engineering a kidney
4. HIV Nephropathy
5. Cyber nephrology
6. Mars Dialysis Therapy
7. Renal nutritional management in Chronic Renal Failure.
8. Recent advances in chronic Peritoneal Dialysis Therapy
9. Interventional managements in Nephrology
10. Newer concepts in the prevention of contrast Nephropathy.

8. Discuss the experimental models in acute renal failure and the future Therapeutic options based on the outcome.

9. Discuss the role of kidney in maintaining acid-base homeostasis.

**Short notes on:**

1. Role of transporters in kidney
2. Renal prostaglandins
3. Leptins in renal diseases
4. Tubuloglomerular feedback
5. Isotope studies for Reno vascular hypertension
6. Apoptosis in renal diseases
7. Cystatin C
8. Juxtaglomerular apparatus
9. Genetics of alports syndrome
10. Counter current mechanism.

10. Discuss the pathogenesis of edema in various forms of renal disease.

11. Describe the etiology, pathogenesis, clinical manifestations and management of metabolic alkalosis.

**Write notes on:**

1. Anatomy of the Juxta-glomerular apparatus
2. Inhibitors of stone formation
3. Drugs that alter the serum potassium level
4. Countercurrent multiplier system

12. Discuss the etiology, clinical presentation and diagnosis of ischemic renal disease

13. Discuss the role of dialysis in the treatment of exogenous intoxications.

Write notes on:

1. Mycophenolate Mofetil
  2. Cyclosporine nephrotoxicity
  3. Value of ambulatory blood pressure monitoring in
  4. management of hypertension.
  5. Anticoagulation during hemodialysis
  6. Diagnosis of coronary artery disease in patients with end stage
  7. Renal disease.
- 
14. Describe the clinical manifestations of chronic uremia. Discuss the Conservative management of chronic renal failure.
  15. Discuss the pathogenesis of diabetic nephropathy. Describe the stages of nephropathy in insulin dependent and non insulin dependent diabetes. Discuss the primary and secondary prevention of nephropathy.
  16. Discuss the pathogenesis, clinical presentation, renal histology and long term Outcome of IgA nephropathy.
  17. Describe the pathogenesis, clinical manifestations management and outcome of the hepatorenal syndrome.

1. Write short notes on:

- a. Azathioprine related complications in renal transplant recipients.
  - b. Causes of hypo responsiveness to erythropoietin in chronic renal failure.
  - c. Non infectious complications of continuous ambulatory peritoneal dialysis.
  - d. Acute renal failure in malaria
  - e. Pregnancy in a renal transplant recipient.
- 
18. Discuss the role of radioisotopes in assessing renal structure and function.
  19. Classify hyponatremia. Describe its clinical manifestations and management.

Write briefly on:

- a. Synthesis of calcitriol and its regulation.
- b. Laboratory diagnosis of pheochromocytoma
- c. Effects of ageing on renal structure and function.
- d. Diagnostic significance of formed elements of the urine sediment
- e. Idiopathic hypercalcaemia.



- f. Chronic rejection in Renal Transplant.
- g. Role of prophylactic antibiotics in Renal Transplant.
- h. Xenotransplantation, current status and future prospects.
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### NEPHROLOGY

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7. Small solute clearance & PD adequacy.
8. Genetics of Polycystic Kidney disease in adults.
9. Calcineurin inhibitor avoidance in renal Tx-Immunosuppression.
10. Plasmapheresis in TTP- HUS.

1. Discuss the diagnostic role of various serological tests in renal disease.

2. Briefly describe the following :-

- a. Etiology of renal pyelonephritis.
- b. Nephrotic syndrome.
- c. Metabolic control of urinary bladder and its outlet.
- d. Metabolic alkalosis.
- e. Role of Myofibrillar protein as an immunoprecipitant.

1. A patient receives a renal transplant, and passes urine freely from the time the clamps are released. 6 hours later, he becomes oliguric. What are the possible causes and the mechanism by which they produce oliguria? How will you investigate him? What treatment will you offer?

2. Briefly describe the following :-

- a. The treatment of the hemolytic uraemic syndrome.
- b. The approach to a patient with hypotension during haemodialysis.
- c. The causes, clinical features, and management of acute uric acid nephropathy.
- d. The diagnosis of renal artery stenosis.
- e. The prevention of recurrent calcium stone formation.

1. Discuss the indications for lipid lowering therapy in patients with renal disease. Classify lipid lowering drugs and mention their side effects.

2. Briefly describe the following :-

- a. Diuretic scintigraphy.
- b. Risk factors for chronic rejection of renal allograft.
- c. 11-B hydroxysteroid dehydrogenase deficiency and hypertension.
- d. New markers for determination of glomerular filtration rate.
- e. Treatment of Nephrotic nephropathy

.....

Briefly describe the following :-

- a. Role of epithelial sodium channel in sodium homeostasis and control of blood pressure.
- b. Advanced glycosylation in diabetic nephropathy.
- c. Occupational renal disease.
- d. Role of heparin in therapy of proliferative glomerular diseases.
- e. Endothelins in kidney diseases.
- f. Nitric oxide and acute renal failure.
- g. Role of proteinuria in progression of chronic renal disease.
- h. Pump defects in distal renal tubular acidosis.
- i. Renal effects of non-steroidal anti-inflammatory drugs.
- j. Association between angiotensin converting enzyme gene polymorphism with renal disease outcome.

Write short notes on :-

- a. Diagnostic utility of dysmorphic RBCS in urine.
- b. Management of atherosclerotic renal artery stenosis.
- c. Renal morbidity in ischemic acute renal failure.
- d. Management of oxalosis.
- e. Dialysis disequilibrium - pathogenesis and prevention.
- f. Uraking phenomenon during diuretic use.
- g. Measuring bone mineral content - Methods and utility.
- h. Bladder defense mechanism against bacterial infection.
- i. Pathology of light chain nephropathy.
- j. Growth hormone therapy in children after renal transplantation.

3. Discuss the causes of pneumonia in a renal transplant recipient.

- a. Less than 1 month
  - b. 1-4 months after transplantation.
  - c. More than 4 months after transplantation.
- Also discuss the specific therapy for each condition.

4. Describe briefly :-

- a. Role of atrial natriuretic peptide.
- b. Pathophysiology of hypotension during dialysis.
- c. Causes and mechanism of uric acid crystalluria and uric stone formation.
- d. Describe the aetiopathogenesis of hypertension occurring during pregnancy. Which antihypertensive would be preferable in a pregnant woman.
- e. Occurrence of glomerular disease following renal transplant. What is the incidence of graft loss due to recurrent glomerular disease.

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Briefly describe the following :

1. Methods used for evaluation of effectiveness and patient outcome of interventions for renal disease.
2. Factors and pathogenesis of diabetic nephropathy.
3. Adhesion molecules in renal ischaemia, reperfusion and tubular regeneration.
4. Role of HSC peptides in renal immunomodulation.
5. Urea kinetic modelling and hemodialysis qualification.
6. Genetic defects, tubulogenesis and renal cyst formation.
7. Coagulation abnormalities and renal lesions in pro-echinopsia / oclampsia.
8. Aquaporins and nephrogenic diabetes insipidus.
9. Renal disease and drug abuse.
10. Progressive hypertensive nephrosclerosis.

PAPER - II

Write short notes on :

1. Lympho-proliferative disorders following renal transplantation - Pathology and Pathogenesis.
2. Reversible renal failure in IGA nephropathy - Pathogenesis and Management.
3. Therapeutic options in focal segmental glomerulosclerosis.
4. Postoperative acute renal failure - Pathogenesis and Management.
5. Factors influencing peritoneal solute transport.
6. Pathology of idiopathic retro-arteritis.
7. Evidence for the intact nephron hypothesis.
8. Glomerular filtration rate in the post-obstructive period - Mechanisms of regulation.
9. Diagnosis of autosomal dominant polycystic kidney disease.
10. Radio-resistant nephropathy - Pathogenesis and prevention.

PAPER - III

Describe the management of cardiac disease in chronic (17/3/2007)

1. Risk factor intervention
2. Uremia related intervention
3. Describe related intervention
4. MRI angiography in renal disease.
5. Effect of th-ipo on the endocardial abnormalities in uraemia.
6. 15 - Deoxyspergualin.
7. High Flux Dialyzer
8. Magnesian homeostasis.

Write short notes on :

1. Genetic basis of inherited glomerular basement membrane disorders.
2. Idiopathic hypercalcaemia.
3. Anatomy of the juxtaglomerular apparatus.
4. Laboratory assessment of urinary amylification.
5. Synthesis of calcitriol and its regulation.
6. Significance of bacterial colony counts in urinary tract infections.
7. Etiopathogenesis of syndrome of inappropriate secretion of antidiuretic hormone.
8. Renal involvement in progressive systemic sclerosis.
9. Role of complement in pathogenesis of glomerular disease.
10. Juvenile nephronophthisis.

PAPER - II

Write short notes on :

1. Clinical features and diagnosis of acute cortical necrosis in abruptio placentae.
2. Causes and implications of delayed graft functions after renal transplantation.
3. Diagnosis and management of acute calyceate intoxication.
4. Clinical manifestations and pathology of HIV associated nephropathy.
5. Urinary sodium gap and its clinical utility.
6. Thin basement membrane disease.
7. Assessment of adequacy of dialysis in CAPD.
8. Special Problems of renal transplantation in children.
9. Indications and choice of antihypertensive drugs during pregnancy.
10. Diagnosis and treatment of thrombotic microangiopathy.

PAPER - III

Write short notes on :

1. Clinical utility of angiotensin II receptor antagonists. Drugs affecting serum potassium levels and mechanism of their effect.
2. Newer strategies for prevention of acute tubular necrosis.
3. Morphological patterns and prognostic markers of IGA nephropathy.
4. Diagnosis of renal tuberculosis.
5. Immunology and histopathology of renal vasculitis.
6. Clinical presentation and non invasive tests for diagnosis of ischemic nephropathy.
7. Diagnosis of dialysis related amyloid and effect of renal transplantation on this lesion.
8. Diagnosis and treatment of venous occlusion of a hemodialysis access.
9. Amotransplantation - problems and future.



PAPER - I

Write short notes on :

- Genetic basis of cystic kidney disease
- Androgenic inhibitors on stone formation.
- Laboratory diagnosis of primary hyperparathyroidism.
- Counterregulatory multihormonal system.
- Crugs that alter the serum potassium level and mechanism of this effect.
- Acidotropic cytoplasmic antibodies : Diagnostic and pathogenetic role in vasculitides.
- Angiotensin receptor antagonists.
- Renal involvement in primary gout.
- Diagnostic utility of radioisotope scans in native renal parenchymal disease.
- Bartter's syndrome.

PAPER - II

A patient with multiple myeloma presents with acute renal failure. What investigations would you perform, and why? How would you treat the different possible causes?

Write short notes on :

- a. Pulse calcitriol therapy.
- 1. The hepatitis C virus and the kidney.
- 2. Clinical manifestations of IGA nephropathy.
- 3. Indications for, mechanisms of, and use of diuretics in calcium disorders.
- 4. The pathogenesis of focal and segmental glomerular sclerosis.

PAPER - III

Uses and limitations of serum creatinine in estimation of GFR.

- Therapeutic approaches to thrombotic microangiopathy.
- Interleukins in minimal change disease.
- e. Lipoprotein glomerulopathy.
- Cis-platinum nephrotoxicity and its prevention.
- Immunomodulatory and molecular genetics in the diagnosis of Alport's syndrome.
- Factors accounting for stunting of growth in CKF and role of recombinant human growth hormone.
- Assessment of adequacy of GFR and measures to improve it.
- Myophenolate mofetil.
- Gene therapy in renal medicine.

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Write short notes on :

- a. Tolerance in relation to renal Transplantation.
- b. Genetic basis of nephrogenic diabetes insipidus.
- c. Pathogenesis of Hypertensive nephropathy.
- d. Mechanisms of acute renal failure due to hepatic.
- e. Pathology of kidney in hemolytic uremic syndrome.
- f. Molecular basis for newer therapies in Lupus Nephritis.
- g. Trans-acting Growth factor in diabetic Nephropathy.
- h. Angiotensin II receptor antagonists in renal disease.
- i. Methods of measurement of Glomerular filtration rate.
- j. Ischemic Nephropathy.

PAPER - II

Write briefly on the following :

- a. Renal involvement in talciparum malaria.
- b. Microalbuminuria in essential hypertension.
- c. Hypokinetic uric acid nephropathy.
- d. Pathogenesis and management of idiopathic oedema.
- e. Acute renal failure in bone marrow transplantation.
- f. Resistance to erythropoietin therapy.
- g. Hypotension during haemodialysis.
- h. Apoptosis in renal disease.
- i. Diagnostic significance of hypocoagulable plasma.
- j. Asymptomatic bacteriuria.

PAPER - III

Write short notes on :

- a. Nephritic analogues of Vitamin D.
- b. Ultrafiltration in ambulatory peritoneal dialysis.
- c. Myophenolate mofetil.
- d. Value of sublethal blood pressure monitoring.
- e. Methods and complications of dialyzer reuse.
- f. Pathogenesis and management of hemostatic disturbances in chronic renal failure.
- g. Definition and causes of late allograft failure.
- h. Post transplant erythrocytosis.
- i. Renal microcirculation.
- j. Pathogenesis of diabetic nephropathy.

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Write short notes on :

- The mechanism of factors influencing renal handling of conjugates.
- Renal involvement in multiple myeloma.
- Complement regulatory proteins.
- Crystallin.
- Pathogenesis of Shiga toxin associated hemolytic uremic syndrome.
- Helper lymphocyte subsets.
- Mechanism of action of ACE inhibitors in proteinuric states.
- Host defence mechanisms against urinary tract infection.
- Renal applications of 2D Cr - angiography.

PAPER - II

Describe the principles of drug therapy in patients with renal failure and describe briefly the dosage of following drugs in patients on dialysis :

- Anti tubercular drugs.
- Anti hypertensives.

Write brief notes on :

- Lepid in chronic renal failure.
- Treatment of idiopathic membranous nephropathy.
- Renal histological changes in :
  - Leptosia.
  - Snake bite.
  - Allograft hypertension.
- Management of acute peritonitis in CAPD patients.
- Evaluation of a cadaver for organ donation.

PAPER - III

Write short notes on :

- Persistence of secondary hyperparathyroidism after renal transplantation.
- Use of bicarbonate versus lactate as buffer in continuous ambulatory peritoneal dialysis solutions.
- Isolated systolic hypertension in the elderly.
- Microbiologic criteria for diagnosis and grading a acute rejection.
- Use of Basiliximab in renal transplant recipients.
- Crash hormone therapy in patients with chronic renal failure.
- New generation tests for diagnosis of cyclosporin toxicity.
- Infection in transplant recipients.
- Revascularization in atherosclerotic renal artery disease.
- Nutritional management of patients with chronic renal failure.
- Strategies for prevention of diabetic maculopathy.

- Discuss the role of various mediators in immunologically mediated renal injury.
- Write short notes on :
  - Infection localising tests in urinary tract infection, pyelonephritis and developmental anomalies of the kidney and the urinary tract.
  - Micro-albuminuria.
  - Renal pathology of :
    - Thrombotic thrombocytopenic purpura.
    - Post streptococcal glomerulonephritis.
  - Measurement of urinary protein.

PAPER - II

Discuss the current concepts of renal bone disease.

Write short notes on :

- Progression of renal disease.
- Present status of Diabetic nephropathy.
- Long term complications of dialysis.
- Metabolic alkalosis.
- Target Hemoglobin in the EPO era in patients of chronic renal failure.

PAPER - III

Write short notes on the following :

- Serological tests in glomerular diseases.
- Non-infectious post renal transplant complications.
- Treatment of ARI in the intensive care units.
- Prognosis of peritoneal dialysis and long term care of dialysis.
- Alloantigenic renal failure.
- Acute rejection in renal Transplant.
- Role of prophylactic antibiotics in renal Transplantation.
- Transcatheter aortic valve replacement, current status and future prospects.
- Hepatitis C virus infection in glomerular disease.
- Value of nuclear imaging in nephrology.

1. Pathogenesis of the parathyroid-related protein and secondary hyperparathyroidism.
2. Pathogenic role of hyperparathyroidism and antihypercalcaemic agents.
3. Mechanisms of antihypercalcaemic actions of anti-tumour necrosis factor- $\alpha$  and bisphosphonates.
4. Comparison of antihypercalcaemic agents.
5. Evaluation of antihypercalcaemic agents.
6. Metabolic disturbances and renal injury due to hypercalcaemia.
7. Metabolic disturbances and renal injury due to hypercalcaemia.
8. Metabolic disturbances and renal injury due to hypercalcaemia.
9. Metabolic disturbances and renal injury due to hypercalcaemia.
10. Metabolic disturbances and renal injury due to hypercalcaemia.

PAPER - II

- Briefly describe the following :-
1. Radioisotope studies in a renal transplant recipient.
  2. Pathogenesis of minimal change disease.
  3. Role of calcium channel blockers in preventing the progression of diabetic nephropathy.
  4. Pregnancy in women with systemic lupus erythematosus.
  5. Evolution of acquired renal cystic disease after transplantation.
  6. Management of venous stenosis of access for circulation.
  7. Prognostic features of adult idiopathic membranous glomerulonephritis.
  8. Histological classification of renal graft histology.
  9. Interferon therapy for HIV associated membranous nephropathy.
  10. Cadaver survival in C A P D patients.

PAPER - III

1. What are the features that help to distinguish secondary focal segmental glomerulosclerosis (FSGS) from idiopathic FSGS ? Discuss the different morphologic variants, pathogenesis and treatment of idiopathic FSGS.
2. Briefly describe the following :-
  - a. Assessment and management of malnutrition in hemodialysis.
  - b. Pathophysiology of hemolytic uremic syndrome.
  - c. Pathophysiology and diagnostic significance of hypercomplementemia in renal diseases.
  - d. Nephrotic causes of late graft loss.
  - e. Genetic diagnosis of autosomal dominant polycystic kidney disease.

6

1. Discuss the pathophysiology of primary renal tubular acidosis.
2. Briefly describe the following :-
  - a. Renal tubular acidosis.
  - b. Pathology of human immunodeficiency virus associated glomerulonephritis.
  - c. Criteria for determining brain stem death.
  - d. Effect of intravenous calcitriol on insulin resistance.
  - e. Myoglobinuria.

PAPER - II

- Discuss the role of parathyroid hormone (PTH) as a uremic toxin.
1. Briefly describe the following :-
    - a. Principles of prescription of drug in severe renal failure.
    - b. Most defence mechanisms against urinary tract infection.
    - c. Pharmacologic agents used with organ preservation solution.
    - d. Definition, significance and management of acute tubular necrosis.
    - e. Acute pyelonephritis (AIP in Myeloma).

PAPER - III

1. Discuss the role of molecular genetics in hereditary renal diseases.
2. Briefly describe the following :-
  - a. Diagnosis of renovascular hypertension.
  - b. Use of urinary electrolytes in the differentiation of clinical renal disorders.
  - c. Histological diagnosis of renal allograft rejection.
  - d. Treatment of diffuse proliferative lupus nephritis.
  - e. Water treatment for hemodialysis unit.

7



PAPER I

Write short notes on :-

- a. Juxta mesangium
- b. Factors influencing renal handling of magne
- c. Renal involvement in multiple myeloma.
- d. Complement regulatory proteins.
- e. Cystatin C.
- f. Pathogenesis of shiga toxin associated hem syndrome.
- g. T helper lymphocyte subsets.
- h. Mechanisms of action of ACE inhibitors in
- i. Host defence mechanisms against urinary tr
- j. Renal applications of 3D CT - angiography.

PAPER II

1. Describe the principles of drug therapy in patie. failure and describe briefly the dosage of followi. patients on dialysis :

- i. Anti tubercular drugs.
- ii. Anti hypertensives.

2. Write brief notes on :

- a. Leptin in chronic renal failure.
- b. Treatment of idiopathic membranous nephropathy.
- c. Renal histological changes in :

- i. Eclampsia.
- ii. Snake bite.
- iii. Malignant hypertension.

- d. Management of acute peritonitis in CAPD patients.
- e. Evaluation of a cadaver for organ donation.

PAPER - III

Write short notes on :

- a. Persistence of secondary hyperparathyroidism after renal transplantation.
- b. Use of bicarbonate versus lactate as buffer in continuous ambulatory peritoneal dialysis solutions.
- c. Isolated systolic hypertension in the elderly.
- d. Histologic criteria for diagnosis and grading a acute rejection.
- e. Use of Basiliximab in renal transplant recipients.
- f. Growth hormone therapy in patients with chronic renal fa
- g. New generation tests for diagnosis of cytomegalovirus infection in transplant recipients.
- h. Vasculatization in atherosclerotic renal artery disease
- i. Nutritional management of patients with chronic renal fa
- j. Strategies for prevention of diabetic nephropathy.

NEPHROLOGY (JANUARY 2000)

PAPER I

1. Discuss the role of various mediators in immunologically mediated renal injury.
2. Write short notes on :
  - a. Infection localising tests in urinary tract infection.
  - b. Angiotensin and developmental anomalies of the kidney and the urinary tract.
  - c. Micro-albuminuria.
  - d. Renal pathology of :
    - i. Thrombotic thrombocytopenic purpura.
    - ii. Post streptococcal glomerulonephritis.
  - e. Measurement of urinary protein.

uremic

uric states.  
action.

with renal  
drugs in

PAPER II

1. Discuss the current concepts of Renal Bone Disease.
2. Write short notes on :
  - a. Progression of Renal Disease.
  - b. Present status of Diabetic Nephropathy.
  - c. Long term complications of dialysis.
  - d. Metabolic alkalosis.
  - e. Target Hemoglobin in the EPO era in patients of chronic renal failure.

PAPER - III

Write short notes on the following :

- a. Serological tests in Glomerular diseases.
- b. Non-infectious post renal transplant complications.
- c. Treatment of ARF in the Intensive Care Units.
- d. Adequacy of peritoneal dialysis and long term out come of CAPD.
- e. Bicoartificial Renal Tubule.
- f. Chronic Rejection in Renal Transplant.
- g. Role of prophylactic antibiotics in Renal Transplantation.
- h. Xenotransplantation, current status and future prospects.
- i. Hepatitis C virus infection in glomerular disease.
- j. Value of nuclear imaging in nephrology.

e.

224

DM Degree Examination, JUNE, 2000

SPECIALITY : NEPHROLOGY

Paper I

BASIC SCIENCES AND APPLIED NEPHROLOGY

Time : 3 hours

Note : Attempt all questions

1. Describe the pathophysiology, tubular function assessment and principles of treatment in Fanconi syndrome.

2. Hypertension in pregnancy.

3. Write short notes on :

- a) Complications of CAPD
- b) Renal involvement in falciparum malaria
- c) Anticoagulation for hemodialysis
- d) Assessment of glomerular filtration.



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DM Degree Examination, JUNE, 2000

SPECIALITY : NEPHROLOGY

Paper III

ADVANCES IN NEPHROLOGY

Time : 3 hours

Note : Attempt all questions

1. Describe the pathogenesis of renal failure in sepsis.

2. Renal involvement and therapy in Henoch Schonlein purpura.

3. Write short notes on:

- \* a) Monoclonal antibodies in renal transplantation
- \* b) Crossmatching in renal transplantation
- \* c) Treatment of membranous nephropathy
- \* d) Thyroid function in uremia

226.

D.M. DEGREE EXAMINATION

NEPHROLOGY

Time: 3 Hours.

PAPER-III.

Answer all questions.

1. Discuss in detail the principles and role of radio nuclides in renal imaging.
2. Discuss advances in the Biotechnology of Renal Failure management.
3. Write short notes on:
  - a) The role of cell adhesion molecules in glomerulo nephritis.
  - b) Endopeptidase inhibition - potential clinical use.
  - c) Atrial Natriuretic peptide (ANP).
  - d) Thin membrane disease.

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226

DM Degree Examination, JUNE, 2000

SPECIALITY : NEPHROLOGY

Paper III

ADVANCES IN NEPHROLOGY

Time : 3 hours

Note : Attempt all questions

- 
1. Describe the pathogenesis of renal failure in sepsis.
  2. Renal involvement and therapy in Henoch Schonlein purpura.
  3. Write short notes on:
    - \* a) Monoclonal antibodies in renal transplantation
    - b) Crossmatching in renal transplantation
    - c) Treatment of membranous nephropathy
    - \* d) Thyroid function in uremia



**QUESTION PAPERS: PCI CHANDIGARH.**

1. Radionuclide studies in renal transplant
2. Pathogenesis of MCD
3. CCB in diabetic nephropathy
4. Pregnancy in SLE
5. Evolution of acquired cystic disease after renal tx
6. Venous stenosis in AVF – management
7. Prognostic factors of MesPGN
8. Banff classification
9. Interferon therapy – HBV membranous nephropathy.
10. Catheter survival in CAPD.
11. Assessment and management of malnutrition in HD
12. Pathogenesis of HUS
13. Pathophysiology and diagnostic significance of hypocomplementemia in renal disease.
14. Non immune causes of late graft loss
15. Genetic diagnosis of ADPKD
16. Distal RTA – clinical and diagnostic tests
17. Salt and water retention in nephritic syndrome
18. Lithium nephrotoxicity.
19. Merits and demerits of creatinine as GFR marker
20. Role of complement in glomerular disease
21. Urinary electrolytes in diagnosis of renal disease
22. Hypomagnesaemia
23. Inherited nephritic syndrome.
24. Factors determining progression of renal disease and modification
25. Angiography induced ARF
26. Refractory hypertension
27. Management of IgA N
28. Nosocomial UTI
29. Renal involvement in FSS
30. CAPD in cirrhotic
31. Evaluation and management of recurrent calcium nephrolithiasis
32. Juvenile nephronophthisis.
33. Renal involvement in APLA
34. Renal involvement in lymphoma
35. Bioartificial kidney
36. NESP
37. Management of atherosclerotic RAS
38. Early vs late initiation of dialysis in CRF
39. Hematological complications following renal tx
40. Protocol renal graft biopsies
41. Renal tx in HIV
42. Intradialytic hypotension
43. Edema in renal disease – pathogenesis

44. Osteopontin
45. Protein metabolism in CRF
46. Aquaporins
47. Hypertension in ADPKD
48. Ischemic nephropathy
49. Management of CAD in CRF
50. Renal involvement in sickle cell disease.
51. Cyclosporine monitoring after renal TX
52. Methanol poisoning
53. ARB- progression of renal disease
54. Water treatment
55. Cyclosporine avoidance regimen in renal TX
56. Newer drugs in management of secondary hyperparathyroidism
57. ARF in AIDS
58. Hurdles to xenotransplantation
59. Accelerated atherosclerosis in CRF
60. Daily HD in CRF
61. Prevention of diabetic nephropathy and progression
62. Nephrotic hyperlipidemia
63. Retroperitoneal fibrosis
64. Diagnostic significance of formed element in urine
65. Management of hyperlipidemia
66. Creatinine clearance and GFR
67. Inhibitors of stone formation
68. HIV and renal disease
69. ANCA
70. ARF in malaria
71. Renal papillary necrosis
72. Non infectious complications of CAPD
73. Uremia and growth in children
74. Hyporesponsiveness to EPO
75. Azathioprine related complications in renal tx
76. Principles of drug dose modification in HD
77. Long term prognosis in PSGN
78. Management of Mes PGN
79. Cyclosporine toxicity
80. MMF
81. Pregnancy in Renal tx
82. Nutritional management of ESRD
83. Ambulatory BP monitoring
84. Recurrent UTI in females
85. Anticoagulation in HD
86. Monogenic HT
87. Inflammation and CRF

88. Diagnosis of primary hyperaldosteronism
89. Homocysteine metabolism and kidney
90. Intact nephron hypothesis
91. Chloride resistant metabolic alkalosis
92. Renal causes of Hypokalemia
93. Medullary cystic disease
94. Kidney in monoclonal immunoglobulin deposition disease
95. Erectile dysfunction in CRF
96. New vitamin D analogues
97. Renal involvement in leprosy
98. Aminoglycoside nephrotoxicity
99. Genetic basis of FSGS
100. Management of PTLD
101. HIVAN
102. Organ preservation in Cadaver
103. Post transplant hyperlipidemia
104. Sirolimus based post Tx immunosuppression
105. Management of fabry's disease
106. Metabolic complications of long term PD
107. HELLP syndrome.
108. Pulmonary renal syndrome.
109. Chinese herb nephropathy
110. Medical management of renal calculi
111. Renal involvement in HSP
112. Familial HUS
113. Kidney in leptospirosis
114. Dialysis membrane biocompatibility and role in management of ARF
115. Plasmapheresis in nephrology
116. Extracorporeal therapy in barbiturate poisoning
117. Renal transplant in primary hyperoxaluria
118. Hepatitis C in renal tx.
119. Beta 2 macroglobulin amyloidosis
120. Microvasculature of the kidney
121. Diagnostic approach to polyuria
122. Genetic basis of cystic kidney disease
123. Anatomic and functional changes in ageing kidney
124. Inherited hypophosphotemic syndromes.
125. Nonbacterial
126. Adynamic bone disease
127. Indications for anticoagulant therapy in nephrotics
128. Management and prevention of pre-eclampsia
129. PTH as uremic toxin
130. Iron administration in CRF
131. Colony counts in UTI



132. Paraneoplastic glomerulonephritis.
133. Athombolic renal disease
134. Management strategies of strategies of steroid resistant acute rejection.
135. Management of primary hyperoxaluria
136. New diagnostic techniques in Alports syndrome
137. Dialysis related amyloidosis
138. IL-2 receptor antibodies
139. Recurrence of native kidney disease in allografts
140. Cystatin C
141. Endothelin antagonist in renal disease
142. Anatomy of JG apparatus
143. Pathogenesis of HRS
144. Vascular biology of haemodialysis access failure.
145. Renal biopsy in high risk patients
146. Radiation nephritis
147. Fabrysis disease
148. Xanthogranulomatus pyelonephritis
149. Regulation of rennin release
150. Lab assessment of urinary acidification
151. Coagulation abnormalities in nephritic syndrome
152. Beta 2 macroglobulin induced bone disease
153. Etiopathogenesis of metabolic alkalosis
154. Etiology and classification of hyponatremia
155. Structure and function of glomerular mesangium
156. Synthesis of calcitriol and its regulation
157. Rifampicin associated renal failure
158. Management of HUS
159. Management of prognosis of membranous nephropathy
160. Diuretics in NS and CRF
161. Lab diagnosis of membranous nephropathy
162. Pregnancy in underlying native kidney disease
163. Renal involvement in primary gout
164. Methods and complications of dialyser
165. Interpretation of cross match and management of highly sensitized tx Recipient.
166. Fibrillary GN
167. Schistosomal glomerulopathy
168. Compensatory renal growth
169. Etiology CP and Dx of ischemic renal disease
170. Bacterial prostatitis
171. PTE
172. Acquired cystic kidney disease
173. VUR management
174. Hypertension in maintenance HD
175. Ultrafiltration failure in CAPD

176. ARF following bone marrow tx
177. Nitric oxide and kidney
178. Renal reserve
179. Management of hypocalcaemia
180. Hypertension due to unilateral renal parenchymal disease
181. Proteinuria – pathogenesis and classification
182. HLA system and renal disease
183. Mechanism of action of diuretics
184. Chronic tx rejection
185. Type 4 RTA
186. Renal involvement in PAN
187. Asymptomatic bacteriuria
188. Uremic pericarditis
189. Diagnosis and management of peritonitis in CAPD
190. Pre tx evaluation of DN ESRD
191. Post transplant hepatitis C
192. Leukocyte adhesion molecules
193. ATIN pathogenesis and clinical features
194. Management and prognosis of FSGS
195. Effects of abnormal lipid profile in progression of renal disease
196. Etiopathogenesis of calcium containing stones
197. Complications of subclavian cannulation for HD
198. Post tx HT
199. Altered vitamin D metabolism in CRF
200. Kidney pregnancy
201. Lupus anticoagulant
202. Heynammns nephritis
203. Fanconal syndrome
204. Anion gap
205. HD membrane biocompatibility
206. GFR measurement
207. Dialysis adequacy
208. Light chain nephropathy
209. Medullary cystic disease
210. Management of RPGN
211. Controversies in primary management of VUR
212. Bleeding disorders in CRF
213. Complications in CAPD
215. Rhabdomyolysis induced ARF
216. Microproteinuria
217. Renal hemodynamic response to protein ingestion
218. ACEI for diagnosis of renal vascular hypertension
219. Systolic HT
220. Renal histology in HSP

221. Thin basement membrane disease
222. Mechanisms of proteinuria induced renal injury
223. Genetic susceptibility factors in SLE
224. Markers of malnutrition in HD
225. Indications and contraindications for CAPD
226. Microchimerism
227. Plant toxins in ARF
228. Clinical utility of ARB
229. Drugs affecting serum potassium levels and their mechanisms
230. Newer strategies for prevention of ATN.
231. Morphologic patterns and prognostic factors in IgAN
232. Diagnosis of renal tuberculosis.
233. Immunology and histopathology of renal vasculitides
234. Clinical presentation and non invasive investigations for ischemic nephropathy.
235. Dialysis related amyloid and effect of renal tx on this lesion.
236. Diagnosis and treatment of venous occlusion of AVF
237. Therapeutic approach to thrombotic microangiopathy
238. Interleukins in MCD
239. Lipoprotein glomerulopathy
240. Cisplatin nephrotoxicity
241. Immunochemistry and molecular genetics of Alports
242. Growth in CRF and role of recombinant growth hormone
243. Adequacy of CAPD
244. Gene therapy in renal disease
245. Role of epithelial sodium channel in sodium homeostasis and control of BP.
246. AGE in DN
247. Occupational renal disease
248. Heparin in therapy in proliferative Gn
249. Endothelia in kidney disease
250. Nitric oxide in ARF
251. Proteinuria in progression of CRF
252. Pump defects in distal RTA
253. Renal effects of NSAID
254. Association between ACE gene polymorphism with renal disease Outcome.
255. Methods used to assess effectiveness and outcomes of Interventions for renal disease.
256. Markers and pathogenesis of DN
257. Adhesion molecules in renal ischemia, reperfusion and tubular Regeneration.
258. Role of MHC peptides in immunomodulation
259. Urea kinetic modeling and HD qualification
260. Genetic defects, tubulogenesis and renal cyst formation
261. Coagulation abnormalities and renal lesions in pre-eclampsia
262. Aquaporins and NDI
263. Renal disease and drug abuse
264. Progressive hypertensive nephrosclerosis.



D.VL DEGREE EXAMINATION

(Higher Specialities)

(Revised Regulations)

Branch III -Nephrology

Paper II- CLINICAL NEPHROLOGY, DIALYSIS,  
TRANSPLANTATION

*Q.P. Code: 161202*

Time: Three hours

Maximum: 100 Marks

ANSWER ALL QUESTIONS

Draw suitable diagrams wherever necessary.

I. Essays: 2 x 20 = 40 Marks

1. IgA nephropathy: Pathogenesis; histology, markers of progression and management;

2. Relationship between aldosterone blockade, ACE inhibition and PROTEINURIA.

II. Write short notes on: 10 X 6 = 60 Marks

1. Cisplatin nephrotoxicity.
2. Role of podocyte in renal disease.
3. Acute kidney injury in pregnancy.
4. Adynamic bone in patients with CKD.
5. Early arteriovenous Fistula Failure.
6. Personal Dialysis Capacity test.
7. Screening for renovascular hypertension.
8. Pathogenesis and diagnosis of myeloma kidney.
9. Sustained low efficiency or extended daily dialysis.
10. Use of mycophenolic acid in non-transplant renal diseases.

[KT011]

Sub. Code:1203

D.M. DEGREE EXAMINATION

(Higher Specialities)

(Revised Regulations)

Branch III -Nephrology

Paper III- NEPHROLOGY - DIALYSIS AND  
TRANSPLANTATION

*Q.P. Code: 161203*

Time: Three hours

Maximum: 100 Marks

ANSWER ALL QUESTIONS

Draw suitable diagrams wherever necessary.

I. Essays:

2 x 20 = 40 Marks

1. Describe the viral infections following renal transplantation and describe in detail management of CMV and BKV infections
2. Discuss the advances in pathogenesis, diagnosis and treatment of thrombotic thrombocytopenic purpura.

II. Write short notes on:

10 X 6 = 60 Marks

1. Ultrafiltration failure in peritoneal dialysis. -
2. Primary Hyperoxalurias.
3. Contrast induced nephropathy,
4. Snake-bite and renal injury.
5. Pathological classification of FSGS.
6. Malignancy after kidney transplantation.
7. Non-infectious complications of CAPD.
8. Management of intradialytic hypotension.
9. Tuberculosis in renal transplant recipients.
10. Endothelial Dysfunction in chronic kidney disease.

[KT 012]

Sub. Code: 1204

**D.M. DEGREE EXAMINATION**

(Higher Specialities)

(Revised Regulations)

Branch III -Nephrology

Paper IV- RECENT ADVANCES

*Q.P. Code: 161204*

Time: Three hours

Maximum: 100 Marks

**ANSWER ALL QUESTIONS**

Draw suitable diagrams wherever necessary.

**I. Essays:**

2 x 20 = 40 Marks

1. Recent classification and molecular mechanisms of renal allograft rejection and its current management.
2. Overview of secondary hyperparathyroidism in CKD and its control with various vitamin D analogs and calcimimetics.

**II. Write short notes on:**

10 X 6 = 60 Marks

1. Herbal Nephropathy.
2. Nephrogenic systemic fibrosis.
3. Post-transplant bone disease.
4. Stem cell therapy in renal disease.
5. Renal transplantations across ABO barrier.
6. Update on peritoneal dialysis solutions.
7. Continuous erythropoietin receptor activator.
8. Anti-endothelial cell antibodies in vasculitis.
9. Management of dense deposit disease.
10. Epidemiology and screening of CKD in India.



NEPHROLOGY

FINAL PAPER I

TIME : 3 HOURS

MARKS 100

ALL QUESTIONS ARE COMPULSORY

Write short notes on : 10 x 10 = 100

- a. Cystatin C
- b. Renal biopsy in high risk patients
- c. Radiation nephritis
- d. Pathogenesis of hepatorenal syndrome
- e. Fabry's disease
- f. Endothelin antagonists
- g. Use of diuretics in non-edematous states
- h. Para neoplastic glomerulopathies
- i. Lithium nephrotoxicity
- j. Countercurrent multiplier system

NEPHROLOGY

FINAL PAPER II

TIME : 3 HOURS

MARKS

100

ALL QUESTIONS ARE COMPULSORY

Write short notes on : 10 x 10 =

100

- a. Iron supplementation in patients of renal failure on EPO
- b. Anti GBM mediated glomerular disease
- c. Pathology of thin membrane disease
- d. Pregnancy in renal transplant patients
- e. Hemodialysis Vs Peritoneal dialysis in ESRD
- f. Rapamycin in renal transplantation
- g. Quality of water for dialysis
- h. Pathogenesis of Lupus Nephritis
- i. Diagnosis of Renal artery stenosis
- j. Laparoscopic donor nephrectomy - current status

NEPHROLOGY

FINAL PAPER III

TIME : 3 HOURS

MARKS

100

ALL QUESTIONS ARE COMPULSORY

1. Discuss the pathogenesis of reflux nephropathy and role of surgery in its management. 25
2. Write briefly notes on : 5 x 15 = 75
  - a. Graft tolerance
  - b. Tacrolimus Vs cyclosporin in renal transplantation
  - c. Pathophysiology of cyst formation in polycystic kidney disease
  - d. Radio contrast induced renal failure and its prevention
  - e. I.N.H. Prophylaxis in transplant patients



D.M. (Neph) 2<sup>nd</sup> Yr Theory Examination

Date 18th. Feb. 07.

Venue: Seminar Room

Time: 2Pm to 5Pm

Max Marks 100

Answer All Questions

1. Evaluation and management of Hyponatremia . 20marks

2. Write Short notes on: 80marks

A) Renal effects of Primary Hyperaldosteronism..

B) Type I Primary Hyperoxaluria and treatment.

C) Carbonic anhydrase inhibitors

D) Urinary acidification by renal tubule.

E) SIADH

F) Bicarbonate regeneration

G) Approach to Hypokalemia

H) Acid sensing

(Please collect Refs at the end of examination )

D.M. (Neph) 1st Yr. Theory Examination

Date: 18th. Feb. 07.  
Venue: Seminar Room  
Time: 2Pm to 5Pm  
Max Marks 100  
Answer All Questions

1. Ultrafiltration in HD , types, and clinical application 20marks
2. Short notes on 80marks
- A) Hepatitis B Vaccine strategies in HD patients
  - B) Risk factors for cardiovascular mortality in MHD patients
  - C) Nocturnal ,Quotodian Hemodialysis
  - D) Urea reduction ratio (URR)
  - E) Diagnostic tests for HCV infection in HD patients
  - F) Catheter related bacteremia in HD and antibiotics
  - G) Heparin lock
  - H) Prescription of Dry weight ,

(Please collect Refs at the end of Examination)

**DM Neph 2<sup>nd</sup> yr Theory Examination**

**Date: 27th. May .07.**

**Venue: Seminar Room**

**Time: 2Pm to 5Pm**

**Max Marks 100**

**Answer All Questions**

1. Ionic dialysance and quality control of hemodialysis
2. Interdialytic weight gain in HD patients, and its implications
3. Tidal peritoneal dialysis in modern practice
4. Role of APD in CAPD
5. Discuss APD solutions
6. Stem cell, the new therapeutic frontier
7. Bioartificial kidney for renal replacement therapy
8. Dialysate regeneration by electrochemical methods
9. Dialysis quantification
10. Reverse Mid dilution for removal of small and middle molecules.



DM Nephrology Iyr Theory Examination

Date : 15<sup>th</sup>, June 08, Sunday

Time: 10am to 1pm

Venue Seminar Room ,Dept of Nephrology

Max Marks 100

Answer all questions

1. Discuss pathogenesis of diabetic nephropathy 20
2. Write Short notes on: 80
  - (a) Proximal renal tubular acidosis
  - (b) Hypokalemic periodic paralysis
  - (c) Renal involvement in amyloidosis
  - (d) Nephrogenic systemic fibrosis
  - (e) Oculorenal syndromes
  - (f) Cystatin C estimation
  - (g) Infantile nephropathic cystinosis
  - (h) Dysregulation of Polycystic kidney

DM Nephrology IYr Theory Examination

Date : 15<sup>th</sup>, June 08, Sunday

Time: 10am to 1pm

Venue Seminar Room, Dept of Nephrology

Max Marks 100

Answer all questions

1. Compare use of ARBs and ACE inhibitors in the management of Proteinuria. 20
2. Discuss use of calcineurin inhibitors, out come and adverse effects in renal transplant patients. 20
3. Discuss risk factors and out come of new onset diabetes in renal transplant patients. 20
4. Write Short notes on: 20
  - (a) Treatment of IgA nephropathy
  - (b) Interferon therapy for HCV in hemodialysis patients.
5. Write Short notes on: 20
  - (a) Sequential therapy for class IV lupus nephritis.
  - (b) Sirilimus use in ADPKD

DM Nephrology 3yr Theory Examination

Date : 15<sup>th</sup>, June 08, Sunday  
Time: 10am to 1pm  
Venue Seminar Room ,Dept of Nephrology  
Max Marks 100

Answer all questions

1. A 19yr old boy developed acute onset of haematuria and proteinuria with abdominal pain. Discuss diagnosis , pathology and treatment . 20marks

2 Write short notes on: 80 "

- (a) Subset of CD4 cells
- (b) Dysregulation of Polycystic kidney
- (c) Bioimpedence technologies in HD
- (d) Use of cinacalcit in CKD
- (e) Renal amyloidosis
- (f) Primary hyperaldosteronism
- (g) Newer drugs in membranous nephropathy
- (h) Phosphate binder choice in dialysis patients



G 8459

Reg. No. ....

Name .....

**D.M. (NEPHROLOGY) DEGREE EXAMINATION, JUNE 2008**

**Paper I—BASIC SCIENCES AS APPLIED TO NEPHROLOGY**

Time : Three Hours

Maximum : 100 Marks

*Answer all questions.*

1. Discuss the molecular anatomy of the slit diaphragm of the podocyte and outline the ways in which its integrity is lost in disease states. Mention a few inherited podocytopathies.

(25 marks)

2. Write briefly on:

- (a) CGFR estimations-fallacies and caveats.
- (b) Water Quality in Hemodialysis.
- (c) Histology of chronic cyclosporin toxicity.
- (d) Urate handling by the kidney in health and disease.
- (e) Acid secretion in the distal tubules physiology and pathophysiology.

(5 x 15 = 75 marks)

G 8460

Reg. No

Name

**D.M. (NEPHROLOGY) DEGREE  
EXAMINATION, JUNE 2008**

Paper II—ALL ASPECTS OF NEPHROLOGY

Time: Three Hours

Maximum: 100 Marks

*Answer all questions.*

1. Discuss the pathophysiology in Sepsis induced Acute Renal Failure. Enumerate the guidelines for managing Sepsis in ICU setting.

(25 marks)

2. Write briefly on :

- (a) Campath-III.
- (b) Management Guidelines for IgA Nephropathy.
- (c) Lipoprotein Nephrotoxicity.
- (d) Nutritional evaluation of an ESRD patient on maintenance Hemodialysis
- (e) HIV and CKD.

(5 x 15 = 75 marks)

G 8461

Reg. No.

Name.

**D.M. (NEPHROLOGY) DEGREE EXAMINATION, JUNE 2008**

Paper III—ALL ASPECTS OF NEPHROLOGY

Time : Three Hours

Maximum : 100 Marks

*Answer all questions.*

1. Discuss briefly the spectrum of disorders of Bone and Mineral Metabolism in CKD, highlighting on the changing spectrum, risk factors and strategies for maintaining balances in ESRD patients.

(25 marks)

2. Write briefly on :

- (a) Proliferation signal inhibitors in Renal Transplant.
- (b) Diagnosing and Managing Metabolic Alkalosis in an ICU.
- (c) Rituezimab in Renal Medicine.
- (d) Lithium Toxicity.
- (e) Home Hemodialysis.

(5 x 15 = 75 marks)



G 8462

Reg. No.....

Name .....

**D.M. (NEPHROLOGY) DEGREE EXAMINATION, JUNE 2008**

**Paper IV—RECENT ADVANCES IN NEPHROLOGY**

Time : Three Hours

Maximum : 100 Marks

*Answer all questions.*

1. Discuss the status of stem cells in the kidney and their role in injury-repair mechanisms. Explore the possibilities of Marrow derived stromal cells being used to abett (aid) therapeutic interventions in

(a) glomerular diseases ; (b) renal transplantation.

(25 marks)

2. Write briefly on :

- (a) Superflux dialysers.
- (b) Acute Humoral Rejection-Detection and Management.
- (c) Aldosterone Inhibition in CKD.
- (d) Early Markers of Acute Kidney Indoxy.
- (e) Human Organ Transplant Act. Issues and your suggestions for recommending a possible amendment.

(5 x 15 = 75 marks)

(Page : 1)

Reg No: .....

Name: .....

DM Nephrology Degree Examination, July 2008  
(2004 Scheme)

Paper- I: BASIC SCIENCE AS APPLIED TO NEPHROLOGY

Time: 3 Hours

Max. Marks: 100

1. Pathogenesis of crescentic glomerulonephritis.
2. Podocytopathy.
3. Co-stimulatory pathway and renal diseases.
4. Potassium Channel and its importance in renal disease.
5. Glomerular tip lesion.
6. Immunotactoid glomerulopathy.
7. Metabolic acidosis in chronic kidney disease.
8. Anion gap in renal disease.
9. Carbonic anhydrase in renal diseases.
10. Active stone former

Reg. No.: .....

Name: .....

DM Nephrology Degree Examination, July 2008  
(2004 Scheme)

Paper – II: CLINICAL NEPHROLOGY, PATHOLOGY AND  
PATHO - PHYSIOLOGY

Time: 3: Hours

Max. Marks

1. Comparative status of FK506 and CsA in renal transplantation-
2. Culture negative peritonitis
3. CKD prevention and its approaches
4. Pathogenesis of pre-eclampsia
5. Approach to acute graft dysfunction on 3<sup>rd</sup> day post renal transplant.
6. Post renal transplant lymphoproliferative disorder.
7. Steroid avoiding regimen in renal transplantation
8. Secondary collapsing glomerulopathy
9. Uremic pericarditis
10. Dialysis-associated ascites



Reg. No.: .....

Name: .....

**DM Nephrology Degree Examination, July 2008**  
**(2004 Scheme)**  
**Paper - III: INVESTIGATIONS IN NEPHROLOGY**

Time: 3 Hours

Max. Marks : 100

1. Diagnosis of CMV disease in renal transplantation.
2. Current status of protocol biopsy in renal transplantation.
3. Diagnosis and management of lactic acidosis.
4. eGFR and its relevance in renal disease.
5. Management of resistant lupous nephritis.
6. Renal transplant in highly sensitised patient.
7. Prevention of chronic allograft nephropathy.
8. Management of oxalosis.
9. Non-calcium PO4 binders
10. Nephrogenic Systemic fibrosis.

Reg. No.: .....

Name: .....

DM Nephrology Degree Examination, July 2008  
(2004 Scheme)  
Paper-IV: RECENT ADVANCES IN NEPHROLOGY

Time: 3 Hours

Max. Marks: 100

1. Assessment of endothelial dysfunction.
  2. Statin and its nonatherosclerotic use in uremia.
  3. Protocol biopsy in renal transplant
  4. Vitamin D analogues in CKD .
  5. Dual renin angiotensin blockage in renal diseases.
  6. Islet cell transplant in diabetic nephropathy
  7. Rituximab in kidney diseases.
  8. Importance of electron microscopy in kidney diseases.
  9. C1q Nephropathy
  10. Renal transplant with non-heart beating donors.
-

20050730Q101

POST GRADUATE EXAMINATION  
ASSESSMENT – 1<sup>ST</sup> YEAR

DURATION – 90 minutes

1. Approach to hyponatremia
2. Management of steroid resistant idiopathic nephrotic syndrome
3. Serological diagnosis of glomerular disease
4. Approach to management of Urinary tract infection
5. Microalbuminuria in renal diseases
6. Treatment of hypertension in renal parenchymal diseases



20050730Q201

POST GRADUATE EXAMINATION  
ASSESSMENT – 2<sup>nd</sup> YEAR

DURATION – 90 minutes

1. Pathological features , nomenclature , and diagnosis of  
small vessel vasculitis
2. Novel therapeutic strategies for treatment of lupus nephritis
3. Distal renal tubular acidosis
4. Peritonitis in CAPD
5. Dialysis in acute renal failure
6. Diagnosis and management of acute renal allograft dysfunction

20050730Q01

POST GRADUATE EXAMINATION  
ASSESSMENT - 3<sup>rd</sup> YEAR

DURATION - 180 minutes

1. Calcimimetic agents
2. Role of FGF 23 in chronic kidney disease
3. Arterial stiffness in CKD
4. BMP- 7 therapy in CKD
5. Stem cell therapy in renal diseases
6. Newer therapeutic strategies for IgA nephropathy
7. Cardio - CKD - anemia triad
8. Immunosuppression induction and maintenance protocols in renal transplantation
9. Renal transplantation in patients with viral hepatitis
10. Hemodialysis adequacy
11. Newer PD solutions
12. Role of statins in hemodialysis

## NEPHROLOGY – PAPER III

TIME : 3-00 P.M. TO 6-00 P.M.

Total Marks: 100

Instructions: 1) Write legibly. No marks are given for material which cannot be read  
2) Marks are indicated on the right  
3) Answer to the point, irrelevant writing decreases the value of the Answer

1. Discuss Hepatitis C virus infection in renal replacement therapy: Management and predictors of patient and graft survival 20
2. Write short notes on : 20
  - A) Recurrent glomerulopathy in renal allograft recipients
  - B) Tuberculosis in renal allograft recipients
3. Discuss 20
  - A) Measures of dialysis adequacy in maintenance hemodialysis
  - B) Automated Peritoneal Dialysis
4. Describe 20
  - A) Ultrafiltration failure in continuous ambulatory peritoneal dialysis (CAPD)
  - B) Continuous Renal Replacement Therapy (CRRT) in Intensive Care Unit (ICU) setting
5. Write short notes on 20
  - A) Fungal peritonitis in CAPD
  - B) Post renal transplant anemia.



Paper II

1. Describe various forms of thrombotic microangiopathy and treatment options
2.
  - a. Patchy cortical necrosis
  - b. Treatment of resistant lupus nephritis
  - c. Tumor lysis syndrome: Prophylaxis and treatment
  - d. BK virus nephropathy
  - e. Prophylaxis and therapy of CMV
  - f. Special features and complications of pediatric transplantation
  - g. Features of SLEDD and advantages
  - h. Treatment of hyperparathyroidism

2. Discuss the pathogenesis of pregnancy induced, hypertension. Describe its clinical features, management and prevention.

3. Write briefly on:

1. Low turnover bone disease
2. Nonuraemic indications for dialysis
3. Rifampicin associated acute renal failure
4. Antineutrophil cytoplasmic antibodies
5. Hypertension due to unilateral renal parenchymal disease.

**RECENT ADVANCES**

1. Describe the inheritance, clinical features, renal histology and management of Alport's Syndrome.
2. Discuss the pathogenesis, pathology and management of acute renal failure following Snake bite.

3. Write Short Notes:

- a. Lupus anticoagulant
- b. Significance of bacterial colony counts in urinary tract infections.
- c. Management of the highly sensitized renal transplant recipient
- d. Renal involvement in primary gout
- e. Emphysematous pyelonephritis.

**ESSAY QUESTIONS:**

1. Describe in detail each of the continuous forms of haemodialysis highlighting the difference between them and indications for each of them.
2. Discuss in detail the factors that determine long term allograft survival and the risk factors for late allograft failure.

**BASIC SCIENCES:**

1. Discuss the role radioisotopes in assessing renal structure and function.
2. Classify hyponatremia. Describe its clinical manifestations and management

3. Write briefly on:

- a. *Synthesis of calcitriol and its regulation*

- b. Laboratory diagnosis of pheochromocytoma
- c. Effects of ageing of renal structures and function
- d. Diagnostic significant of formed elements of the urine sediment.
- e. Idiopathic hypercalciuria

#### NEPHROLOGY – BASIC SCIENCES

1. Discuss the pathogenesis, clinical manifestations and management of metabolic Alkalosis.
2. Describe the etiology, pathogenesis of glomerular disease.
3. Write notes on:
  - a. Role of complement in the pathogenesis of glomerular disease.
  - b. Anatomy of the Juxta-glomerular apparatus
  - c. Inhibitors of stone formation.
  - d. Drugs that alter the serum potassium level
  - e. Countercurrent multiplier system.
1. Discuss the pathogenesis, clinical presentation, renal histology and long term outcome of IgA nephropathy.
2. Describe the pathogenesis, clinical manifestations, management and outcome of the hepatorenal syndrome.
3. Write notes on:
  - a. Azathioprine related complications in renal transplant recipients.
  - b. Causes of hypo responsiveness to erythropoietin in chronic renal failure.
  - c. Non infectious complications of continuous ambulatory peritoneal dialysis.

#### ESSAY QUESTION

1. Describe the clinical manifestations of chronic uremia. Discuss the conservative management of chronic renal failure.
2. Discuss the pathogenesis of diabetic nephropathy. Describe the stages of nephropathy in insulin dependent and non insulin dependent diabetes. Discuss the primary and secondary prevention of nephropathy.

#### RECENT ADVANCES:

1. Discuss the etiology, clinical presentation and diagnosis of ischemic renal disease.

2. Discuss the role of dialysis in the treatment of exogenous intoxications.

3. Write notes on:

1. Mycophenolate mofetil
2. Cyclosporine nephrotoxicity
3. Value of ambulatory blood pressure monitoring in management of hypertension.
4. Anticoagulation during hemodialysis
5. Diagnosis of coronary artery disease in patients with end stage renal disease.

**BASIC SCIENCES:**

1. Sodium transporters in the proximal tubule.
2. Pathogenesis of oedema in Nephrotic syndrome
3. Anti Neutrophilic Cytoplasmic Antibody (ANCA) diagnostic and path physiological Significance.
4. Genetics of Alport's Syndrome.
5. Nuclear Factor Kappa-B (NFkB)
6. Munich Weister Rats.
7. MHC peptides and their role in immunomodulation
8. High volume haemofiltration
9. Salt and hypertension
10. Histology of acute allograft rejection.

**RECENT ADVANCES IN NEPHROLOGY**

1. Mechanisms responsible for chronic renal allograft loss.
2. Role of nitric oxide in acute renal failure.
3. High efficiency dialyzers.
4. Renal risks of smoking
5. Granulocyte-macrophage colony stimulating factor
6. Role of apoptosis in renal diseases.
7. Prevention of diabetic nephropathy-A dream or reality?
8. Xenotransplantation-Is it a viable alternative in the 21<sup>st</sup> century?
9. Indications and complications of therapeutic plasma exchange.



10. Hepatitis C and Renal disease.

#### CLINICAL NEPHROLOGY

1. Hypokalemic paralysis-diagnostic approach from a nephrologists view point.
  2. Nutritional considerations in patients on CAPD
  3. Current understanding of radio contrast nephropathy
  4. Tubulo interstitial damage in glomerular disease mechanism and significance.
  5. Tacrolimus
  6. Renal carbuncle
- 
1. Diagnostic and therapeutic approach to early graft dysfunction in kidney transplantation.
  7. Treatment options in membranous nephropathy
  8. A dynamic bone disease
  9. Light chain glomerulopathy-diagnosis histology and management.

#### ESSAY QUESTIONS

1. Discuss pathogenesis of chronic renal failure in primary glomerulopathies.
2. Discuss current concepts of prevent progression of renal fibrosis.

#### BASIC SCIENCES

1. Describe briefly role of proteoglycans in glomerular pathology.
2. Tumour Necrosis Factor (TNF) and the kidney. Discuss.
3. Polymerase chain reaction (PCR) in renal pathology-Elucidate.
4. G proteins in renal disease. Discuss
5. Discuss pathogenesis and etiology of primary F.S.G.S.
6. Discuss role of lipids in the pathogenesis and progression of renal disease.
7. Discuss Habilitation thesis of Carl Ludwig.
8. Describe cell adhesion molecules in glomerulonephritis
9. Discuss endothelial cell antibodies.

#### BASIC SCIENCES:

1. Discuss the renal handling of potassium causes and approach to treatment of hypokalaemia
2. Discuss the utility of urine analysis in the diagnosis of renal diseases
3. Write short notes on
  - a. Regulation of renal blood flow
  - b. Role of spiral CT in nephrology
  - c. Normal anion gap acidosis