

April-2001

[KD 009]

Sub. Code : 1201

D.M. DEGREE EXAMINATION.

(Higher Specialities)

Branch III — Nephrology

(Revised Regulations)

Paper I — NEPHROLOGY — BASIC SCIENCES

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

1. Classify diuretics according to their sites and mechanisms of action. Discuss the causes and management of diuretic resistance. (25)
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. (25)
3. Write briefly on : (5 × 10 = 50)
  - (a) Management of hypercalcemia
  - (b) Medullary cystic disease
  - (c) Contrast medium induced acute renal failure
  - (d) Renal aquaporins
  - (e) Renal involvement in progressive systemic sclerosis.

November-2001

[KE 009]

Sub. Code : 1201

**D.M. DEGREE EXAMINATION**

(Higher Specialities)

(Revised Regulations)

Branch III — Nephrology

Paper I — NEPHROLOGY — BASIC SCIENCES

Time : Three hours

Maximum : 100 marks

Answer ALL questions

1. Discuss the renal handling of potassium, causes and approach to treatment of hypokalemia. (25)
  2. Discuss the utility of urine analysis in the diagnosis of renal diseases. (25)
  - 3 Write short notes on : (5 × 10 = 50)
    - (a) Regulation of renal blood-flow
    - (b) Role of spiral CT in Nephrology
    - (c) Normal Anion gap acidosis
    - (d) Free-water clearance
    - (e) Diuretic braking phenomenon.
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March-2002

**[KG 009]**

**Sub. Code : 1201**

**D.M. DEGREE EXAMINATION.**

(Higher Specialities)

(Revised Regulations)

Branch III — Nephrology

Paper I — NEPHROLOGY — BASIC SCIENCES

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

1. Discuss the mechanisms of Sodium<sup>+</sup>Transport in the proximal tubule with special reference to membrane transporters. (25)
2. Discuss the pathologic classification of Acute Allograft Rejection and briefly offer a critique on the Banff '97 guidelines. (25)
3. Write briefly on : (5 × 10 = 50)
  - (a) Renal Ammoniogenesis
  - (b) Biocompatibility of Dialysis membranes
  - (c) Chloride resistant metabolic alkalosis
  - (d) Membrane attack complex
  - (e) P. fimbriae.

[KK 009]

Sub. Code : 1201

**D.M. DEGREE EXAMINATION.**

(Higher Specialities)

(Revised Regulations)

Branch III — Nephrology

**Paper I — NEPHROLOGY — BASIC SCIENCES**

Time : Three hours

Maximum : 100 marks

Theory : Two hours and  
forty minutes

Theory : 80 marks

M.C.Q. : Twenty minutes

M.C.Q. : 20 marks

Answer ALL questions.

A. Essay questions :

(2 × 15 = 30)

(1) Discuss the experimental models in acute renal failure and the future therapeutic options based on the outcome.

(2) Discuss the role of kidney in maintaining acid-base homeostasis.

B. Short notes on :

(10 × 5 = 50)

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

[KM 009]

Sub. Code : 1201

D.M. DEGREE EXAMINATION.

(Higher Specialities)

(Revised Regulations)

Branch III — Nephrology

Paper I — NEPHROLOGY — BASIC SCIENCES

Time : Three hours

Maximum : 100 marks

Theory : Two hours and  
forty minutes

Theory : 80 marks

M.C.Q. : Twenty minutes

M.C.Q. : 20 marks

Answer ALL questions.

I. Essay : (2 × 15 = 30)

(1) Discuss the role of the kidney in the regulation of Acid base balance.

(2) Discuss the Vasoactive hormones with particular reference to their role in renal diseases.

II. Write notes on : (10 × 5 = 50)

- (a) Juxta-glomerular apparatus
- (b) Counter-current exchange system
- (c) Renal changes in Pregnancy
- (d) Role of Nuclear imaging in Nephrology

- (e) Pathogenesis of Edema
  - (f) Tubulo-glomerular balance
  - (g) Diuretic braking phenomenon
  - (h) Estimation of Renal Plasma flow
  - (i) Evaluation and Management of Hematuria
  - (j) Importance of Urine analysis in diagnosing renal diseases.
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[KO 009]

Sub. Code : 1201

D.M. DEGREE EXAMINATION.

(Higher Specialities)

(Revised Regulations)

Branch III — Nephrology

Paper I — NEPHROLOGY — BASIC SCIENCES

Time : Three hours                      Maximum : 100 marks

Theory : Two hours and                      Theory : 80 marks  
forty minutes

M.C.Q. : Twenty minutes                      M.C.Q. : 20 marks

Answer ALL questions.

I. Essay : (2 × 15 = 30)

(1) Discuss the Role of AT<sub>1</sub> and AT<sub>2</sub> Receptors in the kidney in Health and Disease.

(2) Discuss the Role of the kidney in maintenance of potassium balance.

II. Write notes on : (10 × 5 = 50)

(a) Renal Auto regulation.

(b) Mechanisms of Renal Acidification.

(c) Serum cystatin C.

(d) Clinical utility of Renal Biopsy in Renal disease.

(e) Role of Nephron in Renal Disease.

(f) Aquaporins.

(g) Urine protein measurement application in screening for Renal Disease.

(h) Organic Anion Transport by Renal Tubule.

(i) Transtubular potassium gradient.

(j) Handling of phosphate by the kidney.

August-2006

[KP 009]

Sub. Code : 1201

D.M. DEGREE EXAMINATION.

(Higher Specialities)

(Revised Regulations)

Branch III – Nephrology

Paper I — NEPHROLOGY – BASIC SCIENCES

Time : Three hours                      Maximum : 100 marks

Theory : Two hours and                      Theory : 80 marks  
forty minutes

M.C.Q. : Twenty minutes                      M.C.Q. : 20 marks

Answer ALL questions.

I. Essay :

(1) Discuss uric acid handling by the kidney and its role in progression of renal failure. (20)

(2) Bartter Syndromes and related Salt-losing Tubulopathies. (15)

(3) Discuss biochemical changes in Brain in Uremia. (15)

II. Write short notes on : (6 × 5 = 30)

(a) Complement and the kidney

(b) Role of aldosterone in chronic kidney disease

(c) Hyperlipidemia in nephritic syndrome

(d) Renal biopsy in patients with type 2 diabetes mellitus

(e) Primary Hyperoxalurias

(f) Tubuloglomerular feedback (TGF).

[KQ 009]

Sub. Code : 1201

D.M. DEGREE EXAMINATION.

(Higher Specialities)

(Revised Regulations)

Branch III — Nephrology

Paper I — NEPHROLOGY – BASIC SCIENCES

Time : Three hours

Maximum : 100 marks

Theory : Two hours and  
forty minutes

Theory : 80 marks

M.C.Q. : Twenty minutes

M.C.Q. : 20 marks

Answer ALL questions.

I. Essay :

1. Name the major membrane transporters in the nephron and consequences of their mutations. Discuss basic principles of tubular transport mechanisms. (20)
2. Outline renal handling of potassium. Discuss approach to Hypokalaemic patient. (15)
3. Discuss aetiology, pathogenesis, clinical features and management of hepatorenal syndrome. (15)

II. Write Short notes : (6 × 5 = 30)

1. Chloride resistant metabolic alkalosis
  2. Management of Hypercalcaemia
  3. Cerebral salt wasting
  4. Cystinosis
  5. Investigation of haematuria
  6. Dent's disease.
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August-2007

**[KR 009]**

**Sub. Code : 1201**

**II. Write short notes :**

**(6 × 5 = 30)**

**D.M. DEGREE EXAMINATION.**

**(Higher Specialities)**

**(Revised Regulations)**

**Branch III — Nephrology**

**Paper I — NEPHROLOGY — BASIC SCIENCES**

**Time : Three hours                      Maximum : 100 marks**

**Theory : Two hours and                      Theory : 80 marks**  
**forty minutes**

**M.C.Q. : Twenty minutes                      M.C.Q. : 20 marks**

**Answer ALL questions.**

**I. Essay :**

**(1) Discuss Renal handling of calcium and  
management of acute hypercalcemia. (20)**

**(2) Describe the ultra structure of glomerulus  
and role of renal mesangium in health and diseases. (15)**

**(3) Discuss molecular basis and treatment of  
Good Pasture's syndrome. (15)**

**(a) Urinary proteomics**

**(b) Aquaporins**

**(c) Antifibrotic therapy in CKD**

**(d) Uremic acidosis**

**(e) New diagnostic markers of ARF**

**(f) Hyponatraemic encephalopathy.**

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August 2008

[KT 009]

Sub. Code: 1201

**D.M. DEGREE EXAMINATION**

**(Higher Specialities)**

**(Revised Regulations)**

**Branch III -Nephrology**

**Paper I– NEPHROLOGY – BASIC SCIENCES**

*Q.P. Code: 161201*

**Time: Three hours**

**Maximum: 100 Marks**

**ANSWER ALL QUESTIONS**

**Draw suitable diagrams wherever necessary.**

**I. Essays:**

**2 x 20 = 40 Marks**

1. Regulation of glomerular filtration and methods of measuring GFR.
2. Renal and extrarenal regulation of potassium and INHERITED disorders of its metabolism.

**II. Write short notes on:**

**10 x 6 = 60 Marks**

1. Complement and the kidney.
  2. Renal fanconi syndrome.
  3. Juxta-glomerular apparatus.
  4. V<sup>2</sup> receptor antagonists in PKD.
  5. Nephrogenic diabetes insipidus.
  6. Counter-current multiplier mechanism.
  7. Inherited disorders of hypophosphatemia.
  8. HMG-COA reductase inhibitors and the kidney.
  9. Cerebral salt wasting syndrome versus SIADH.
  10. Biology and role of Tamm-horsfall glycoprotein.
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August 2009

[KV 009]

Sub. Code: 1201

**D.M. DEGREE EXAMINATION**

**(Higher Specialities)**

**Branch III – Nephrology**

**(Revised Regulations)**

**Paper I – NEPHROLOGY – BASIC SCIENCES**

*Q.P. Code: 161201*

**Time: Three hours**

**Maximum: 100 Marks**

**Answer ALL questions**

**Draw suitable diagrams wherever necessary.**

**I. Essays:**

**2 x 20 = 40**

1. Pathophysiology of edema formation and management.
2. Mechanisms of renal acidification.

**II. Write short notes on:**

**10 x 6 = 60**

1. Tubulo Glomerular feed back.
2. Slit diaphragm.
3. Medullary circulation.
4. Cystinuria.
5. TTKG (Trans tubular potassium gradient).
6. Uremic pruritus.
7. Emerging therapies for amyloidosis.
8. Mycophenolate mofetil (MMF) in renal transplantation.
9. Quotidian hemodialysis.
10. Pathogenesis of collapsing glomerulopathy.

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August 2011

[KZ 009]

Sub. Code: 1201

**DOCTORATE OF MEDICINE (D.M.) DEGREE EXAMINATION**

**(SUPER SPECIALITIES)**

**BRANCH III – NEPHROLOGY**

**NEPHROLOGY – BASIC SCIENCES**

*Q.P. Code: 161201*

**Time : 3 hours  
(180 Min)**

**Maximum : 100 marks**

**Answer ALL questions in the same order.**

**I. Elaborate on :**

	<b>Pages (Max.)</b>	<b>Time (Max.)</b>	<b>Marks (Max.)</b>
1. Discuss renal handling of sodium with emphasis on renal defense mechanisms against hyponatremia.	11	35	15
2. Enumerate the renal physiological changes occurring during pregnancy and discuss on evaluation of renal function during pregnancy.	11	35	15

**II. Write notes on :**

1. Define strong ion difference and outline on its clinical application.	4	10	7
2. Define – ‘Tubulo Glomerular feedback’ and mention the factors mediating it.	4	10	7
3. Gestational diabetes insipidus – outline the cause and management.	4	10	7
4. Pathogenesis of hypercalcemia of malignancy.	4	10	7
5. Interpretation of water deprivation test.	4	10	7
6. Pathology of ‘Cast nephropathy’.	4	10	7
7. Explain the mechanism of ‘Aldosterone escape’.	4	10	7
8. Role of Tamm-Horsfall protein in health and disease.	4	10	7
9. Determinants of Glomerular filtration rate.	4	10	7
10. Enumerate urinary acidification mechanisms.	4	10	7

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[LB 009]

AUGUST 2012

Sub. Code: 1201

D.M – NEPHROLOGY

Paper – I NEPHROLOGY – BASIC SCIENCES

Q.P. Code: 161201

Time: 3 hours  
(180 Min)

Maximum: 100 marks

Answer ALL questions in the same order.

I. Elaborate on:

Pages Time Marks  
(Max.) (Max.) (Max.)

- |   |    |    |    |
|---|----|----|----|
| 1. How do you investigate a patient suspected to have renal tubular acidosis, outline the management of type 1 renal tubular acidosis.  | 16 | 35 | 15 |
| 2. Role of protein restriction in dietary management of chronic kidney disease stage 4, write out the diet for a 55 year old male with stage 4 chronic kidney disease, who is not a diabetic. | 16 | 35 | 15 |

II. Write notes on:

- |   |   |    |   |
|---|---|----|---|
| 1. What is tubular maximum, define renal glycosuria and its clinical implications.  | 4 | 10 | 7 |
| 2. Factors affecting glomerular filtration rate, what are the methods available to estimate it.                                     | 4 | 10 | 7 |
| 3. Mode of action and indications for the use of Metolazone.  | 4 | 10 | 7 |
| 4. Genetics of polycystic kidney disease and the implications of this.  | 4 | 10 | 7 |
| 5. Indications for the combined use of angiotensin converting enzyme inhibitors and angiotensin receptor blockers advantage or not. | 4 | 10 | 7 |
| 6. What are the prognostic factors in a case of IgA nephropathy.  | 4 | 10 | 7 |
| 7. Role of fish oil in management of renal diseases.  | 4 | 10 | 7 |
| 8. What is the fractional excretion of sodium , its diagnostic significance.  | 4 | 10 | 7 |
| 9. What is Cystatin C and what is its usefulness in clinical practice.  | 4 | 10 | 7 |
| 10. Use of diuretics in non oedematous states.  | 4 | 10 | 7 |

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**D.M. – NEPHROLOGY**  
**Paper – I NEPHROLOGY – BASIC SCIENCES**  
*Q.P.Code: 161201*

**Time: Three Hours**

**Maximum: 100 marks**

**I. Elaborate on:**

**(2X15=30)**

1. Regulation of acid base balance by the kidney. Write about the various forms of renal tubular acidosis.
2. Anatomy of renal blood vessels and regulation of renal blood flow.

**II. Write notes on:**

**(10X7=70)**

1. What is the normal role of calcium sensing receptor? Specify the regulation of PTH secretion through the CaSR. What conditions characterize mutations involving CaSR?
2. Explain the anatomy of the juxta glomerular apparatus. Define its role in volume regulation.
3. What are the hormones secreted by the kidney? What are their roles in homeostasis?
4. What are the various types of carbonic anhydrase inhibitors located in the kidney? Explain their role in renal physiology. Write briefly about the conditions associated with their deficiency.
5. What are the components of innate immune system? Mention their role in handling infections.
6. What is anion gap? Detail its role in identifying acidosis?
7. Write briefly on: Glomerulotubular balance and tubuloglomerular feedback.
8. Describe the structure of erythropoietin receptor. Mention the mechanism of action of different hematopoietic agents through the receptor.
9. What are the anatomical and physiological changes that happen in pregnancy with regard to the kidney?
10. What is Bartters syndrome? What are the electrolyte imbalances seen?

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**(LE 009)**

**FEBRUARY 2014**

**Sub. Code:1201**

**D.M. – NEPHROLOGY**  
**Paper – I NEPHROLOGY – BASIC SCIENCES**  
*Q.P.Code: 161201*

**Time: Three Hours**

**Maximum: 100 marks**

**I. Elaborate on:**

**(2X15=30)**

1. Methods of estimating Glomerular Filtration Rate – advantages and fallacies of each method.
2. Magnesium handling by the kidney. Enumerate the various causes of Hypomagnesemia.

**II. Write notes on:**

**(10X7=70)**

1. Juxtaglomerular apparatus
2. Mechanisms of edema formation
3. Use of electron microscope in renal pathology
4. Basiliximab
5. Newer drugs in management of Hepatitis B.
6. Diagnostic work up in a patient having a fresh seroconversion to Hepatitis C.
7. Heyman's Nephritis.
8. Diagnosis of Genito urinary Tuberculosis
9. Transtubular potassium gradient
10. Genetics of Alports syndrome.

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[LF 009]

AUGUST 2014

Sub. Code: 1201

**D.M. – NEPHROLOGY**

**Paper I – NEPHROLOGY – BASIC SCIENCES**

*Q. P. Code: 161201*

**Time: Three Hours**

**Maximum: 100 Marks**

**Answer ALL questions in the same order.**

**I. Elaborate on:**

**(2 x 15 = 30)**

1. What are the different methods to assess GFR?  
What are the drawbacks of different formulas to calculate eGFR?  
What are the KDIGO Guidelines to assess GFR in different categories of patients ?
2. Discuss the role of Electron Microscopy in the diagnosis & evaluation of Kidney diseases.  
How will you prepare & transport the specimen for EM study?

**II. Write notes on:**

**(10 x 7 = 70)**

1. What is Pressure Natriuresis? What is its role in normal physiology?  
What are the implications in the context of Essential Hypertension?
2. FGF 23.
3. T Cell activation.
4. Reverse Osmosis.
5. Renal Magnesium handling.
6. Anatomy & Physiology of Peritoneal water transport.
7. APOL-1 gene.
8. Neurogenic control of lower Urinary tract.
9. Alternate pathway of Complement activation & its importance in renal diseases.
10. Ammoniogenesis.

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[LH 009]

AUGUST 2015

Sub. Code: 1201

**D.M. – NEPHROLOGY**  
**PAPER I – BASIC SCIENCES**

*Q.P. Code : 161201*

**Time : Three Hours**

**Maximum : 100 marks**

**Answer ALL questions**

**I. Elaborate on:**

**(2 x 15 = 30)**

1. Structure of glomerular filtration barrier.  
Describe the mechanism and determinants of Glomerular filtration rate.
2. How is sodium handled by the kidney? Mention the defences against hyponatremia.

**II. Write notes on :**

**(10 x 7 = 70)**

1. Structure and function of diluting segment of nephron.
2. What is urine anion gap? Mention its clinical utility.
3. Pathogenesis of glomerular crescent.
4. Role of electron microscopy in renal pathology.
5. Transforming growth factor beta - its role in renal disease.
6. Distribution of MHC (Major Histocompatibility Complex) Class I & Class II antigens.  
What is MHC restriction?
7. Use of Radionuclide renography in clinical nephrology.
8. Potential role of “low birth weight” on kidney structure and function.
9. Hyperkalemic distal RTA (Renal Tubular acidosis) - causes and mechanisms.
10. Unique features of juxtamedullary nephrons.

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**D.M. – NEPHROLOGY**

**Paper I – NEPHROLOGY – BASIC SCIENCES**

*Q.P.Code: 161201*

**Time: Three Hours**

**Maximum: 100 Marks**

**I. Elaborate on:**

**(2 x 15 = 30)**

1. How is uric acid handled by kidneys? Mention common causes of Hyperuricemia. Outline the impact of Hyperuricemia on kidney.
2. Pathophysiology, common causes and management of Metabolic Alkalosis.

**II. Write notes on:**

**(10 x 7 = 70)**

1. Role of measurement of urinary electrolytes in clinical nephrology.
2. Alternate complement pathway – components, inhibitors and activators.
3. Algorithmic approach of Hypokalemia.
4. Adequacy of kidney biopsy sample and stains used in analysis of kidney biopsy specimen.
5. Urine sediment analysis in Acute Kidney Injury.
6. Genetics of Alport's syndrome.
7. Pathology of Malignant Nephrosclerosis.
8. Innervation of urinary bladder.
9. Vaptans – mechanism of action and clinical indications.
10. Pores in peritoneal membrane.

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(LL 009)

AUGUST 2017

Sub. Code:1201

**D.M. – NEPHROLOGY**

**Paper I – NEPHROLOGY – BASIC SCIENCES**

*Q.P.Code: 161201*

**Time: Three Hours**

**Maximum: 100 Marks**

**I. Elaborate on:**

**(2 x 15 = 30)**

1. Discuss causes and management of resistant hypertension.
2. Explain defects of urine acidification in renal tubular acidosis (RTA).  
How will you manage a case of type 1 RTA?

**II. Write notes on:**

**(10 x 7 = 70)**

1. Clinical significance of urinary casts.
2. What is fractional excretion of sodium? What is the diagnostic significance?
3. Aquaporins.
4. Cerebral salt wasting syndrome and SIADH.
5. Diuretic resistance and Diuretic braking phenomenon.
6. Describe the differences and advantages of RIFLE and AKIN classification of acute kidney injury (AKI).
7. Clinical significance, advantage and disadvantage of complete RAAS blockade.
8. Heparin induced thrombocytopenia.
9. Explain the mechanism of 'Aldosterone escape'.
10. Hepatorenal syndrome.

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(LM 009)

FEBRUARY 2018

Sub. Code:1201

**D.M. – NEPHROLOGY**

**Paper I – NEPHROLOGY – BASIC SCIENCES**

*Q.P.Code: 161201*

**Time: Three Hours**

**Maximum: 100 Marks**

**I. Elaborate on:**

**(2 x 15 = 30)**

1. Describe the pathogenesis of cyst formation in Autosomal Dominant Polycystic Kidney Disease.
2. Describe potassium homeostasis in the body. Briefly describe the etiology of hypokalemia and its evaluation.

**II. Write notes on:**

**(10 x 7 = 70)**

1. Lactic acidosis.
2. Tubulo-glomerular feedback.
3. C4D staining.
4. Aquaporins in the Peritoneal membrane.
5. Describe the complement cascade.
6. Cystatin C.
7. Erythrocyte casts.
8. Transporters in the Thick Ascending Limb of the Loop of Henle.
9. Apoptosis.
10. Delta anion gap.

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(LN 009)

AUGUST 2018

Sub. Code: 1201

**D.M. – NEPHROLOGY**

**Paper I – NEPHROLOGY – BASIC SCIENCES**

*Q.P.Code: 161201*

**Time: Three Hours**

**Maximum: 100 Marks**

**I. Elaborate on:**

**(2 x 15 = 30)**

1. Causes and management of hyponatremia.
2. Discuss the Renal physiological changes occurring during pregnancy.

**II. Write notes on:**

**(10 x 7 = 70)**

1. Microalbuminuria and its relevance in clinical nephrology.
2. Malnutrition Inflammation and Atherosclerosis (MIA) syndrome.
3. Masugi nephritis.
4. Monogenic Hypertension.
5. Effect of ageing on renal physiology.
6. Aquaretics.
7. Podocyte slit diaphragm and podocytopathies.
8. Give physiology of bladder filling and emptying. Describe neurogenic bladder.
9. Renal embryogenesis.
10. Inherited disorders of hypophosphatemia.

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**D.M. – NEPHROLOGY**

**Paper I – NEPHROLOGY – BASIC SCIENCES**

*Q.P. Code: 161201*

**Time: Three Hours**

**Maximum: 100 Marks**

**I. Elaborate on:**

**(2 x 15 = 30)**

1. What are the characteristics of primary Acid-Base disorder and its Renal compensation? Discuss in detail causes and treatment of saline-responsive and Saline Resistant Metabolic alkalosis.
2. Renin-Angiotensin axis and its role in Renovascular Hypertension. How will you investigate and manage Renovascular Hypertension?

**II. Write notes on:**

**(10 x 7 = 70)**

1. What are the limitations of creatinine clearance and plasma creatinine in estimating GFR?
2. Discuss the various causes of Nephrogenic DI according to probable mechanisms of action of ADH.
3. Fluid and electrolyte disturbance in diabetic ketoacidosis.
4. What are the clinical applications of urine chemistries? How estimation of urine – Na excretion is relevant to various clinical situations?
5. What are prostaglandins and its renal action? Discuss NSAID induced hemodynamic mediated AKI and clinical conditions predisposing to it.
6. Erythropoetin and its physiological role in maintaining Hemoglobin. Various guidelines for Epo-usage for maintaining Hb in CKD patients.
7. What are the causes of Hypomagnesemia? Treatment option for Hypo magnesemia, What are the precautions you will take and monitor Mg replacement?
8. Pathogenesis of preeclampsia and new biomarkers.
9. Nephrotoxic anti malignancy drugs – Discuss.
10. Renal diseases presenting as RPRF. Discuss any one in detail.

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(LR 009)

NOVEMBER 2020  
(AUGUST 2020 SESSION)

Sub. Code: 1201

**D.M. – NEPHROLOGY**

**Paper I – NEPHROLOGY – BASIC SCIENCES**

*Q.P. Code: 161201*

**Time: Three Hours**

**Maximum: 100 Marks**

**I. Elaborate on:**

**(2 x 15 = 30)**

1. Discuss renal handling of potassium. Etiology and management of hypokalemia.
2. Discuss the role of precision medicine in nephrology.

**II. Write notes on:**

**(10 x 7 = 70)**

1. Urine examination for proteinuria
2. Heymann's nephritis
3. Differential diagnosis of linear immunofluorescence pattern on renal biopsy
4. Renal glycosuria
5. Crystal induced acute kidney injury
6. Evaluation of polyuria
7. Treatment of hyperphosphatemia in chronic kidney disease
8. Serological diagnosis of systemic lupus erythematosus
9. Use of diuretics in chronic kidney disease
10. Genes involved in the development of kidney

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(DM 0821)

AUGUST 2021

Sub. Code: 1201

**D.M. – NEPHROLOGY**

**Paper I – NEPHROLOGY – BASIC SCIENCES**

*Q.P. Code: 161201*

**Time: Three Hours**

**Maximum: 100 Marks**

**I. Elaborate on:**

**(2 x 15 = 30)**

1. Pathophysiology of septic acute kidney injury.
2. Genetic testing in kidney diseases.

**II. Write notes on:**

**(10 x 7 = 70)**

1. Air pollution and kidney.
2. Laboratory testing for anti-neutrophilic cytoplasmic antibody.
3. Base excess and its clinical implications.
4. Calciphylaxis.
5. Hot spots of chronic kidney disease in the world.
6. Newer drugs in management of hyperkalemia.
7. Pathophysiology of dialysis disequilibrium syndrome.
8. Pathology of diabetic nephropathy.
9. Animal models of lupus nephritis.
10. Anatomy and embryology of posterior urethral valves.

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**THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY**

[DM 0822]

AUGUST 2022

Sub. Code :1201

**D.M. – NEPHROLOGY**

**Paper I – NEPHROLOGY – BASIC SCIENCES**

*Q.P. Code: 161201*

**Time: Three Hours**

**Maximum: 100 Marks**

**I. Elaborate on:**

**(2 x 15 = 30)**

1. Explain the various methods of assessment of GFR. Enumerate the various formulas to calculate the estimated GFR and discuss the disadvantage and advantage of each. Mention the KDIGO guidelines on assessment of GFR.
2. Renal physiological changes in pregnancy and evaluation of renal function during pregnancy.

**II. Write notes on:**

**(10 x 7 = 70)**

1. Renal autoregulation.
2. Nephrogenic diabetes insipidus.
3. Role of nuclear imaging in nephrology.
4. Complements and kidney.
5. Mechanism of renal acidification.
6. APOL-1 gene and kidney.
7. Defenses against hyponatremia.
8. Pathogenesis of dyslipidemia in nephrotic syndrome.
9. Inherited disorders of hypophosphatemia.
10. Renal failure indices.

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**THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY**

**[DM 0223]**

**FEBRUARY 2023**

**Sub. Code :1201**

**D.M. – NEPHROLOGY**

**PAPER I – NEPHROLOGY – BASIC SCIENCES**

*Q.P. Code: 161201*

**Time: Three Hours**

**Maximum: 100 Marks**

**I. Elaborate on:**

**(2 x 15 = 30)**

1. Explain in detail uric acid handling by kidneys. Discuss about renal manifestations of hyperuricemia.
2. Discuss in detail about causes, diagnosis and treatment of metabolic alkalosis.

**II. Write notes on:**

**(10 x 7 = 70)**

1. Type 2 renal tubular acidosis.
2. Counter-current mechanism.
3. Pathogenesis of resistant hypertension in CKD.
4. Various methods of urine protein estimation.
5. Diuretic resistant edema and its management.
6. Discuss about glomerular filtration barrier and molecular basis of Alports syndrome.
7. Pathogenesis of ANCA associated vasculitis.
8. Approach to hypernatremia.
9. T regulatory cells.
10. Urinary biochemistry in diagnosis of acute kidney injury.

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**THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY**

**[DM 0823]**

**AUGUST 2023**

**Sub. Code :1201**

**D.M. – NEPHROLOGY**

**PAPER I – NEPHROLOGY – BASIC SCIENCES**

*Q.P. Code: 161201*

**Time: Three Hours**

**Maximum: 100 Marks**

**I. Elaborate on:** **(2 x 15 = 30)**

1. Discuss the mechanisms and mediations of Renal Fibrosis.
2. Discuss the determinants of Glomerular filtration rate and briefly mention the Glomerular adaptation in Chronic Kidney Disease.

**II. Write notes on:** **(10 x 7 = 70)**

1. Pathology of Collapsing Glomerulopathy.
2. What is the Physiology of Renal Splay?
3. Unique features of Renal Circulation.
4. Quote an example for Triple acid-base disorder and explain its pathophysiology.
5. “Co-stimulatory molecules” and their significance in immune activation.
6. What is NETosis?
7. Recent concepts on pathogenesis of Oedema in Nephrotic syndrome.
8. Enumerate renal physiological changes in Pregnancy.
9. Pores in peritoneal membrane and their functional significance.
10. Renal interstitial cells and their function.

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**THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY**

**[DM 0124]**

**JANUARY 2024**

**Sub. Code :1201**

**D.M. – NEPHROLOGY**

**PAPER I – NEPHROLOGY – BASIC SCIENCES**

*Q.P. Code: 161201*

**Time: Three Hours**

**Maximum: 100 Marks**

**I. Elaborate on:**

**(2 x 15 = 30)**

1. Discuss the pathophysiology of Acid-base and Electrolyte disturbances in Chronic Liver disease.
2. How is magnesium handled by Kidney? Write a brief note on Familial Hypomagnesaemia with Hypocalciuria and Nephrocalcinosis.

**II. Write notes on:**

**(10 x 7 = 70)**

1. Urinary acidification mechanisms.
2. Dyselectrolytemias in COVID-19.
3. Calcium Alkali syndrome.
4. Tumour lysis syndrome.
5. Causes and Algorithmic approach to hyponatremia in a Medical Oncology unit.
6. Posthypercapnic Metabolic Alkalosis.
7. Functions of Uromodulin.
8. Anatomy and functional significance of cortical collecting duct.
9. Briefly discuss on functional significance of calcium sensing receptors and enumerate diseases associated with their dysfunction.
10. Pseudohypoaldosteronism.

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