

पाटन स्वास्थ्य विज्ञान प्रतिष्ठान
सेवा आयोग
प्राविधिक सेवा, प्राज्ञिक समूह, नेफ्रोलोजी उपसमूह, विभिन्न पदहरू (लेक्चरर/उप-प्राध्यापक/सह-
प्राध्यापक/प्राध्यापक) को खुल्ला र आन्तरिक प्रतियोगितात्मक परिक्षाको पाठ्यक्रम

पाठ्यक्रमको रूपरेखा :- यस पाठ्यक्रमको आधारमा निम्नानुसार चरणमा परीक्षा लिइनेछ ।

प्रथम चरण :- लिखित परीक्षा

पूर्णाङ्क :- २००

द्वितीय चरण :- अन्तर्वार्ता

पूर्णाङ्क :- ३०

प्रथम चरण :- लिखित परीक्षा (Written Examination)					Full Marks:- 200	
पत्र	विषय	पूर्णाङ्क	उत्तीर्णाङ्क	परीक्षा प्रणाली	प्रश्नसंख्या X अङ्क	समय
प्रथम	General Health Issues and Service Specific	१००	४०	वस्तुगत: बहुवैकल्पिक प्रश्न (Objective: Multiple Choice)	१०० प्रश्न x १ अङ्क = १००	१ घण्टा ३० मिनेट
द्वितीय		१००	४०	विषयगत (Subjective)	६ प्रश्न x १० अङ्क = ६० (Long Answer) २ प्रश्न x २० अङ्क = ४० (Critical Analysis & Problem Solving)	३ घण्टा
द्वितीय चरण :- अन्तर्वार्ता (Interview)					Full Marks:- 30	
व्यक्तिगत अन्तर्वार्ता		३०		मौखिक (Oral)		

द्रष्टव्य :

- लिखित परीक्षाको माध्यम भाषा अंग्रेजी हुनेछ ।
- लिखित परीक्षाको उत्तीर्णाङ्क ४० प्रतिशत हुनेछ ।
- पाठ्यक्रमको प्रथम तथा द्वितीय पत्रको विषयवस्तु एउटै हुनेछ ।
- प्रथम पत्र र द्वितीय पत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ ।
- प्रथम पत्रमा **Part (C) Service Specific Technical Subject** बाट मात्र यथासम्भव पाठ्यक्रममा भएका सबै पाठ्यांशहरूबाट निम्नानुसार प्रश्नहरू सोधिनेछ ।

Part (C) Service Specific Technical Subject	Weightage
Unit Contents	
1. General Nephrology (At least one question must be taken from each subunit)	20
2. Clinical Nephrology	80
2.1 Assessment of patient with renal disease	2
2.2 Fluid, electrolyte and divalent ion disorders	4
2.3 Glomerular Diseases	4

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2.4 Kidney in systemic disease	4
2.5 Functional defect and the diseases of the renal tubules	6
2.6 Chronic interstitial disease	6
2.7 Urinary tract infection	6
2.8 Renal stone disease	4
2.9 Renal hypertension	4
2.10 Failure of the renal function	4
2.11 The patient with failing renal function	2
2.12 The pregnant patient	2
2.13 The patient with inherited disease	2
2.14 Structure and congenital abnormalities	2
2.15 Malignant disease of the kidney and renal tract	2
2.16 Diet in renal diseases	2
2.17 Pharmacology and drug use in kidney patient	2
2.18 Other organ system in relation to kidney diseases	4
2.19 Renal replacement therapy	4
2.20 Recent advances in Nephrology	2
2.21 Renal investigations	2
3. Principle and Practice of Internal Medicine	10

६. द्वितीय पत्रमा यथासम्भव निम्नानुसार प्रश्नहरू सोधिनेछ ।

Part	Weightage
(A) General Health Issues	30
(B) Service Specific General Subject	20
(C) Service Specific Technical Subject	50

७. द्वितीय पत्र/विषयका Part A, Part B र Part C को उत्तरपुस्तिकाहरू छुट्टाछुट्टै दिन सकिने छ । यदि उत्तरपुस्तिकाहरू छुट्टाछुट्टै दिएमा परिक्षार्थीले प्रत्येक भाग (Part) का प्रश्नहरूको उत्तर सोही भागको उत्तरपुस्तिकामा लेख्नुपर्नेछ ।
८. यस पाठ्यक्रम योजना अन्तर्गतका पत्र/विषयका विषयवस्तुमा जेसुकै लेखिएको भए तापनि पाठ्यक्रममा परेका कानून, ऐन, नियम तथा नीतिहरू परीक्षाको मिति भन्दा ३ महिना अगाडि (संशोधन भएका वा संशोधन भई हटाईएका वा थप गरी संशोधन भई) कायम रहेकालाई यस पाठ्यक्रममा परेको सम्झनु पर्दछ ।
९. प्रथम चरणको लिखित परीक्षाबाट छनौट भएका उम्मेदवारहरू मात्र द्वितीय चरणको अन्तर्वातामा सम्मिलित हुन पाउनेछन् ।

१०. पाठ्यक्रम लागू मिति :- २०७०/१२/२१

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Paper I & II: - General Health Issues and Service Specific

Part A: - General Health Issues

1. Present Constitution of Nepal (Health and Welfare issues)
2. Existing National Health Policy
3. Second long term health plan (1997-2017)
4. Health sector in present periodic plan
5. Prevailing health related Acts and Regulations
 - 5.1 Health Service Act
 - 5.2 Health Service Regulation
 - 5.3 Human Organ Transplant Act
 - 5.4 Kidney Transplant Regulation
 - 5.5 Nepal Medical Council Act
 - 5.6 Consumers Protection Act
6. International health agencies: Role and responsibilities of WHO, UNICEF, UNFPA and interagency relationships
7. Health and Human Right including Women's Right, Children's Right, Professional's Right, Client Right and Informed consent
8. Gender issues and health
9. Organization structure of Ministry of Health
10. Local governance and decentralization in health
11. Health institution development and management issues
12. Health manpower recruitment and development issues
13. Continuing medical education
14. National health training system
15. Indigenous & traditional faith healing & health practices
16. Supervision, types and its usage in Health Sector
17. Monitoring and Evaluation System in Health
18. Health Management Information System
19. Health insurance and financing in Health Care

Part B: - Service Specific General Subject

1. Institutional management
2. Organization of faculty/ department
3. Financial planning
4. Principles of Medical Ethics and Medical Informatics
5. Evidence Based Medicine / Critical Appraisal of Scientific Literature
6. Principles of Research Methodology and Scientific Writing
7. Principles of Medical Education

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8. Principle of Communication and Patient Counseling
9. Patient Safety
10. Breaking Bad News
11. Medical Audit
12. Epidemiology and Principle of Prevention and Control of Non-communicable Diseases
13. Information technology, Tele medicine etc.

Part C: - Service Specific Technical Subject

1. General Nephrology

- 1.1 Anatomy
 - 1.1.1 Kidney and urinary bladder
 - 1.1.2 Developmental anatomy of kidney
 - 1.1.3 Renal histology
 - 1.1.4 Applied anatomy
- 1.2 Physiology
 - 1.2.1 Functional anatomy of the nephron
 - 1.2.2 Renal circulation, Glomerular filtration and reabsorption and secretion in the tubules
 - 1.2.3 Concentrating and diluting mechanism of kidney
 - 1.2.4 Renal regulation of blood volume, blood pressure, acid-base balance and calcium balance
 - 1.2.5 Renal hormones: physiological function of renal prostaglandin and Kallikrins
 - 1.2.6 Endocrinology related to kidney
- 1.3 Biochemistry
 - 1.3.1 Fluid and electrolytes balance
 - 1.3.2 Chemistry of carbohydrate, protein and fat metabolism
 - 1.3.3 Vitamins and the kidney
 - 1.3.4 Metabolism and the kidney
- 1.4 Pharmacology
 - 1.4.1 General pharmacology: mechanism of drug action, drug interaction, adverse reaction to drugs & principles of drug therapy
 - 1.4.2 Principles of clinical pharmacology specially in renal diseases
- 1.5 Microbiology
 - 1.5.1 Antimicrobial agents
 - 1.5.2 Bacteria of medical importance and their diagnosis
- 1.6 Immunology
 - 1.6.1 General immunology
 - 1.6.2 Hypersensitivity

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- 1.6.3 Autoimmune disease
- 1.6.4 Transplantation immunity
- 1.6.5 Tumor immunity
- 1.7 Histopathology of renal disease
- 1.8 Medical genetics and medical statistics

2. Clinical Nephrology

- 2.1 Assessment of patient with renal disease
 - 2.1.1 History and clinical examination of the patient
 - 2.1.2 Urinary analysis and microscopy
 - 2.1.3 Renal function and testing of function
 - 2.1.4 Renal function in newborn and the elderly
- 2.2 Fluid, electrolyte and divalent ion disorders
 - 2.2.1 Hypo - hyponatraemia: disorders of water balance
 - 2.2.2 Hypo - hyperkalaemia
 - 2.2.3 Hypo – hypercalcaemia
 - 2.2.4 Hypo - hyperphosphataemia
 - 2.2.5 Hypo - hypermagnesaemia
 - 2.2.6 Clinical acid-base disorders
- 2.3 Glomerular Diseases
 - 2.3.1 Mechanism of glomerular injury
 - 2.3.2 Proteinuria and haematuria
 - 2.3.3 Nephrotic syndrome
 - 2.3.4 Glomerulonephritis:
 - 2.3.4.1 Primary
 - 2.3.4.2 Postinfectious GN (Poststreptococcal GN)
 - 2.3.5 Systemic disease causing glomerulonephritis
 - 2.3.5.1 SLE
 - 2.3.5.2 PAN
 - 2.3.5.3 Good pasture syndrome
 - 2.3.5.4 Wegener's Granuloma
 - 2.3.5.5 Churg's strauss syndrome
 - 2.3.6 Glomerular disease in the tropics
- 2.4 Kidney in systemic disease
 - 2.4.1 Diabetic nephropathy
 - 2.4.2 Amyloidosis and immunotactoid glomerulopathy
 - 2.4.3 Kidney involvement in plasma cell dyscrasia
 - 2.4.4 Renal involvement in sarcoidosis
 - 2.4.5 Renal vasculitis
 - 2.4.6 Mixed cryoglobulinaemia and hepatitis C infection

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- 2.4.7 Systemic lupus erythematosus
- 2.4.8 Scleroderma- systemic sclerosis
- 2.4.9 rheumatoid arthritis, mixed connective tissue disease and polymyositis
- 2.4.10 Sjogren's syndrome and overlap syndromes
- 2.4.11 Sickle cell disease
- 2.5 Functional defect and the diseases of the renal tubules
 - 2.5.1 Fanconi Syndrome
 - 2.5.2 Isolated defects of tubular function
 - 2.5.3 Renal tubular acidosis
 - 2.5.4 Renal Glycosuria
 - 2.5.5 Renal tuberculosis
 - 2.5.6 Hypokalaemic tubular disorders
 - 2.5.7 Nephrogenic diabetes insipidus
- 2.6 Chronic interstitial disease
 - 2.6.1 Analgesic nephropathy
 - 2.6.2 Non steroidal anti-inflammatory drugs and the kidney
 - 2.6.3 Uric acid and the kidney
 - 2.6.4 Heavy metals and the kidney
 - 2.6.5 Radiation nephritis
 - 2.6.6 Lithium and the kidney
 - 2.6.7 Balkan nephropathy
- 2.7 Urinary tract infection
 - 2.7.1 Microbiology and defenses of the urinary tract
 - 2.7.2 Host factors in the pathogenesis of urinary tract infections
 - 2.7.3 Lower and upper urinary tract infection in the adult
 - 2.7.4 Urinary tract infection in infancy and childhood
 - 2.7.5 Schistosomiasis
 - 2.7.6 Fungal infections and the kidney
- 2.8 Renal stone disease
 - 2.8.1 Etiological factors in stone formation
 - 2.8.2 Medical management of stone diseases
 - 2.8.3 Surgical management of stone diseases
 - 2.8.4 Nephrocalcinosis
- 2.9 Renal hypertension
 - 2.9.1 Clinical approach to hypertension
 - 2.9.2 Kidney and control of blood pressure
 - 2.9.3 Effects of hypertension on renal vasculature and structure
 - 2.9.4 Clinical investigation of the rennin-angiotensin-aldosterone system
 - 2.9.5 Ischaemic nephropathy

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- 2.9.6 Hypertension and unilateral renal parenchymal disease
- 2.9.7 Reno vascular hypertension
- 2.9.8 Accelerated hypertension
- 2.10 Failure of the renal function
 - 2.10.1 Acute renal failure
 - 2.10.1.1 Epidemiology and pathophysiology of acute renal failure
 - 2.10.1.2 Clinical approach to the patient with acute renal failure
 - 2.10.1.3 Renal replacement methods in acute renal failure
 - 2.10.1.4 Dialysis and haemoperfusion treatment of acute poisoning
 - 2.10.1.5 Special acute renal failure problems
 - 2.10.1.5.1 Glomerulonephritis, vasculitis, and nephritic syndrome
 - 2.10.1.5.2 Acute interstitial nephritis
 - 2.10.1.5.3 Acute renal failure associated with microangiopathy
 - 2.10.1.5.4 Acute renal failure in liver diseases
 - 2.10.1.5.5 Ischaemic renal disease
 - 2.10.1.5.6 Hantavirus infection
 - 2.10.1.6 Acute renal failure in a special setting
 - 2.10.1.6.1 Infants and children
 - 2.10.1.6.2 Pregnancy
 - 2.10.1.6.3 The elderly
 - 2.10.1.6.4 Tropical countries
 - 2.10.2 Chronic renal failure
 - 2.10.2.1 Chronic renal failure in children
 - 2.10.2.2 Chronic renal failure in the elderly
 - 2.10.2.3 Chronic renal failure due to diabetes mellitus
- 2.11 The patient with failing renal function
 - 2.11.1 Mechanisms of experimental and clinical renal scarring
 - 2.11.2 Assessment and initial management of the patient with failing renal function
 - 2.11.3 The patient with uremia
 - 2.11.3.1 Genesis of uraemic syndrome
 - 2.11.3.2 Metabolic disorders
 - 2.11.3.3 Endocrine disorders
 - 2.11.3.4 Sexual disorders
 - 2.11.3.5 Hypertension and cardiac problems
 - 2.11.3.6 Gastrointestinal effects and liver disorders
 - 2.11.3.7 Hematological disorders
 - 2.11.3.8 Skeletal disorders
 - 2.11.3.9 Effects on the immune response

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- 2.11.3.10 Coagulation disorders
- 2.11.3.11 Dermatological disorders
- 2.11.3.12 Neuropsychiatric disorders
- 2.12 The pregnant patient
 - 2.12.1 Renal physiological changes during pregnancy
 - 2.12.2 Renal complications in pregnancy
 - 2.12.3 Renal disease and pregnancy
 - 2.12.4 Pregnancy induced - hypertension
- 2.13 The patient with inherited disease
 - 2.13.1 The molecular genetics of inherited renal disease
 - 2.13.2 Cystic diseases
 - 2.13.2.1 Polycystic kidney disease in children
 - 2.13.2.2 Autosomal – dominant polycystic renal disease
 - 2.13.3 Nephronophthiasis
 - 2.13.4 Inherited glomerular disease
 - 2.13.4.1 Alport's syndrome
 - 2.13.4.2 Anderson-fabry's disease and other inherited metabolic storage disorder with significant renal involvement
 - 2.13.4.3 Nail-patella syndrome and other rare inherited disorders with glomerular involvement
 - 2.13.4.4 Congenital nephritic syndrome
 - 2.13.5 Inherited metabolic diseases of the kidney
 - 2.13.5.1 Cystinosis
 - 2.13.5.2 Primary hyperoxalurias
 - 2.13.5.3 Inherited disorders of purine metabolism and transport
 - 2.13.6 Renal involvement in tuberous sclerosis and von Hippel-Lindau disease
 - 2.13.7 Some rare inherited syndrome with renal involvement
- 2.14 Structure and congenital abnormalities
 - 2.14.1 Vesicoureteric reflux and reflux nephropathy
 - 2.14.2 Urinary tract obstruction
 - 2.14.3 congenital abnormalities of the urinary tract
 - 2.14.4 Medullary 'sponge' kidney
- 2.15 Malignant disease of the kidney and renal tract
 - 2.15.1 Renal carcinoma and others tumors
 - 2.15.2 Wilm's tumour
 - 2.15.3 Tumors of the renal pelvis and ureter
 - 2.15.4 Tumors of the bladder
 - 2.15.5 Tumors of the prostate
- 2.16 Diet in renal diseases

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- 2.17 Pharmacology and drug use in kidney patient
 - 2.17.1 Drug induced nephropathies
 - 2.17.2 Handling the drugs in kidney disease
 - 2.17.3 Action and clinical use of diuretics
- 2.18 Other organ system in relation to kidney diseases
 - 2.18.1 Rheumatology and the kidney
 - 2.18.2 Diseases of skin and the kidney
 - 2.18.3 Gastrointestinal disease and the kidney
 - 2.18.4 Liver diseases and the kidney
 - 2.18.5 Oncology and the kidney
 - 2.18.6 Neurological system and the kidney
 - 2.18.7 Cardio respiratory system and the kidney
 - 2.18.8 Hematology and the kidney
 - 2.18.9 Eye and the kidney
- 2.19 Renal replacement therapy
 - 2.19.1 Dialysis therapy
 - 2.19.1.1 Vascular access
 - 2.19.1.2 Haemodialysis, haemofiltration and complications of technique
 - 2.19.1.3 Peritoneal dialysis and complications of technique
 - 2.19.1.4 Adequacy of dialysis
 - 2.19.1.5 Medical management of the dialysis patient
 - 2.19.1.6 Psychological aspects of treatment for renal failure
 - 2.19.2 Renal transplantation
 - 2.19.2.1 Donor–Live related or unrelated, cadaveric
 - 2.19.2.2 Transplant immunology
 - 2.19.2.3 Therapeutic approach to renal transplantation
 - 2.19.2.4 Pre and post transplant management
 - 2.19.2.5 Cyclosporine nephrotoxicity
 - 2.19.2.6 Ethics, psychological, socio-economical, medico-legal aspects in renal transplantation
- 2.20 Recent advances in Nephrology
- 2.21 Renal investigations
 - 2.21.1 Renal radiology
 - 2.21.2 Ultrasound and Renogram
 - 2.21.3 Intravenous urology
 - 2.21.4 Angiography
 - 2.21.5 Renal histology
 - 2.21.6 Laboratory medicine as applied to nephrology

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3. Principle and Practice of Internal Medicine

- 3.1 Cardiology
- 3.2 Respiratory Medicine
- 3.3 Gastroenterology
- 3.4 HematologyRheumatologyNeurology
- 3.5 Infection and Tropical diseases
- 3.6 Endocrinology and metabolic diseases
- 3.7 Oncology
- 3.8 Dermatology
- 3.9 Psychiatry

--- The end ---