

पाटन स्वास्थ्य विज्ञान प्रतिष्ठान, सेवाआयोग
प्राज्ञिक सेवा, बालचिकित्सा समूह, Nephrology उपसमूह, सहायकप्राध्यापक पद, (नौ ख) (१ख) तहको
खुला र आन्तरिक प्रतियोगितात्मक परीक्षाको पाठ्यक्रम
एवं परीक्षायोजना

यस पाठ्यक्रमयोजनालाई दुई चरणमा विभाजनगरिएको छ :

प्रथम चरण :- लिखित परीक्षा(Written Examination)

पूर्णाङ्क :- २००

द्वितीय चरण :-अन्तर्वार्ता (Interview)

पूर्णाङ्क :- ३०

प्रथम चरण(First Phase) :लिखित परीक्षा योजना(Written Examination Scheme)

| Paper | Subject | Marks | Full Marks | Pass Marks | No. Questions & Weightage | Time Allowed |
|----------------------------------|---|-------|------------|------------|--|--------------|
| I | Part I: Management, General Health Issues, Academic Research and Teaching-Learning Practices | 50 | 100 | 40 | 10 × 5 = 50 (Subjective) | 1.30 hrs |
| | Part II: Technical Subject (Relevant Subject) | 50 | | | 50 × 1 = 50 (Objective Multiple Choice) | 45 min |
| II | Technical Subject (Relevant Subject) | | 100 | 40 | 7 × 10 = 70 (Long answer) 2 × 15 = 30 (Critical Analysis) | 3.00 hrs |
| द्वितीय चरण(Second Phase) | | | | | | |
| | Interview | | | 30 | | Oral |

द्रष्टव्य :

- लिखित परीक्षाको माध्यमभाषा नेपालीवाअंग्रेजीअथवा नेपाली र अंग्रेजीदुवै हुन सक्नेछ ।
- प्रतिष्ठानको प्राज्ञिक सेवाअन्तर्गतकासवै समूह/सवै उपसमूहहरूको लागिप्रथमपत्रको Part I को पाठ्यक्रमको विषयवस्तु एउटै हुनेछ । तर प्रथमपत्रको Part II र द्वितीयपत्रTechnical Subjectको पाठ्यक्रमसमूह/उपसमूहअनुरूप फरक फरक हुनेछ ।
- प्रथम र द्वितीयपत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ ।प्रथमपत्रको Part II र द्वितीयपत्रको विषयवस्तु एउटै समूहको हकमा समानहुनेछ । परीक्षामा सोधिने प्रश्नसंख्या र अङ्कभार यथासम्भव सम्बन्धितपत्र, विषयमादिईए अनुसार हुनेछ ।
- वस्तुगत बहुवैकल्पिक(Multiple Choice)प्रश्नहरूको गलत उत्तर दिएमाप्रत्येक गलत उत्तर बापत २० प्रतिशतअङ्कट्यागिनेछ । तर उत्तर नदिएमा त्यस बापतअङ्कदिइने छैन र अङ्कट्यापनिगारिने छैन ।
- वस्तुगत बहुवैकल्पिकहुने परीक्षामा परीक्षार्थीले उत्तर लेख्दाअंग्रेजी ठूलो अक्षर (Capital letter) A,B,C,Dमा लेख्नुपर्नेछ । सानो अक्षर(Small letter) a, b, c, d लेखेको वाअन्यकुनै सङ्केत गरेको भए सबै उत्तरपुस्तिका रद्द हुनेछ ।
- बहुवैकल्पिकप्रश्नहरू हुने परीक्षामाकुनै प्रकारको क्याल्कुलेटर (Calculator)प्रयोग गर्न पाइने छैन ।
- विषयगतप्रश्नहरूको हकमा एउटै प्रश्नकादुई वादुई भन्दा बढी भाग(Two or more parts of a single question) वा एउटा प्रश्नअन्तर्गत दुई वा बढी टिप्पणीहरू (Short notes) सोध्न सकिने छ ।
- विषयगतप्रश्नमाप्रत्येकपत्र/विषयकाप्रत्येक खण्डका लागि छुट्टाछुट्टै उत्तरपुस्तिकाहरू हुनेछन् । परीक्षार्थीले प्रत्येक खण्डका प्रश्नहरूको उत्तर सोही खण्डका उत्तरपुस्तिकामा लेख्नुपर्नेछ ।
- यस पाठ्यक्रमयोजनाअन्तर्गतकापत्र/विषयकाविषयवस्तुमा जेसुकै लेखिएको भएतापनि पाठ्यक्रममा परेका कानून, ऐन, नियम, विनियमतथानीतिहरू परीक्षाको मितिभन्दा ३ महिना अगाडि (संशोधनभएकावा संशोधनभई हटाईएकावाथप गरी संशोधनभई) कायम रहेकालाई यस पाठ्यक्रममा परेको सम्झनु पर्दछ ।
- प्रथमचरणको परीक्षाबाट छनौट भएकाउम्मेदवारहरूलाई मात्रद्वितीयचरणको परीक्षामा सम्मिलित गराइनेछ।
- पाठ्यक्रमलागुमिति : २०७९/१२/२१

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Paper I: General Subject

Part I:

(Management, General Health Issues, Academic Research and Teaching-Learning Practices)

Section (A) - 25 Marks

1. Management

- 1.1. Health care management system in Nepal and other parts of the world
- 1.2. Fundamental principles of healthcare institution and hospital management.
- 1.3. Effective hospital management principles
- 1.4. Purpose of medical and non-medical data and records
- 1.5. Ethics and responsibility of management
- 1.6. Concept of management and its application in health care including hospital
 - 1.7.1 Management: Concept, principles, functions, scope and role, level and skills of manager
 - 1.7.2 Planning: Concept, principles, nature, types, instruments and steps
 - 1.7.3 Leadership: Concept, function, leadership styles, leadership and management
 - 1.7.4 Coordination: Concept, types, techniques of effective coordination
 - 1.7.5 Communication and counselling: Concept, communication processes and barrier to effective communication, techniques for improving communication
 - 1.7.6 Decision making: Importance, types, rational process of decision making, problem solving techniques, improving decision making
 - 1.7.7 Participative management: Concept, advantage and disadvantage, techniques of participation
 - 1.7.8 Time management: Concept, essential factors and strategies for effective time management
 - 1.7.9 Conflict management: Concept, approaches to conflict, levels of conflict, causes of conflict and strategies for conflict management
 - 1.7.10 Stress management: Concept, causes and sources of stress, techniques of stress management
 - 1.7.11 Change management: Concept, sources of organizational change, resistance to change, management of resistance to change
 - 1.7.12 Appreciative inquiry: Concept, basic principle and management
 - 1.7.13 Human resource management: Concept, functions and different aspects
 - 1.7.14 Health manpower recruitment and development
 - 1.7.15 Financial management: Concept, approaches, budget formulation and implementation, Auditing and topics related to fiscal administration

2. General Health Issues

- 2.1. Present constitution of federal republic of Nepal (including health and welfare issues)
- 2.2. Organizational structure of Ministry of Health at national/federal, regional/state, district (if applicable), municipal and village council level
- 2.3. Professional council and related regulations
- 2.4. National Health Policy
- 2.5. Health Service Act and Regulation
- 2.6. Second Long term health plan
- 2.7. Health Management Information System, forms, indicators, annual reports
- 2.8. Human Development Indices, Sustainable Development Goals
- 2.9. Health volunteers in the national health system, its rationale, use and effectiveness
- 2.10. Local governance and community participation in health service delivery

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- 2.11. Health Insurance and financing in health care
- 2.12. Alternative health care system: Ayurveda, homeopathy, Unani, Chinese etc.
- 2.13. Indigenous and traditional faith health and health practices
- 2.14. International Health Agencies: Roles and responsibilities of WHO, UNICEF, UNFPA, Inter-agency relationships, Government-agency coordination: Joint Annual Review meeting
- 2.15. Supervision, types and its usage in health sector
- 2.16. Monitoring and evaluation system in health sector
- 2.17. National Health Training Centre
- 2.18. National and International Disaster Plan, Coordination
- 2.19. Patan Academy of Health Sciences Act, Mission, Goals, Organogram
- 2.20. Scope and function of Patan Academy of Health Sciences executive bodies (senate, executive committee, academic council, faculty board, hospital management committee, subject committee), various other committees

Section (B) - 25 Marks

3. Academic Research

- 3.1 Ethics, Bio-ethics and Professionalism
- 3.2 Human dignity and Human Right
- 3.3 Benefit and Harm
- 3.4 Autonomy and Individual responsibility
- 3.5 Consent and capacity to consent
- 3.6 Privacy and confidentiality
- 3.7 Respect for humans and personal integrity
- 3.8 Non-discrimination and non-stigmatization
- 3.9 Respect for cultural diversity and pluralism
- 3.10 National Health Research Council (NHRC) and its guidelines
- 3.11 Research process: ethical research proposal development, research principles, methods and materials, conclusion/recommendation/lesson learnt, commonly used referencing styles
- 3.12 IRB/IRC forms, types, use, importance; getting IRB/IRC clearance
- 3.13 Ethics on research methodology: sample selection, sample size calculation, ensuring reliability and validity of the instruments as well as methods proposed for health research
- 3.14 Quantitative and Qualitative studies
- 3.15 Data analysis (data visualization, descriptive statistics, inferential statistics with statistical hypotheses and appropriate tools/methods for quantitative studies; theme and code generation, thematic analysis, content analysis, grounded theory for qualitative and triangulation for mixed method studies)
- 3.16 Research ethics on vulnerable and non-vulnerable population
- 3.17 Research proposal/protocol/publication:
- 3.18 Publication ethics, plagiarism including self-plagiarism

4. Teaching-Learning, Assessment and Evaluation

- 4.1 Lancet Commission Report on Education of Health Professionals
- 4.2 Adult learning: Theories, principles, use, importance and outcomes, Andragogy vs. Pedagogy
- 4.3 Conventional teaching-learning: Didactic lectures, Teacher centred approaches, use and importance
- 4.4 Surface learning, deep learning and metacognition
- 4.5 Integrated teaching: Genesis, use, importance and outcomes
- 4.6 Problem-based learning: Genesis, use, importance and outcomes
- 4.7 SPICES model its use, importance and outcomes

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- 4.8 Socialization, self-directed learning, mentoring, role model
- 4.9 Community orientation/community posting, re-orientation of medical education camp, community based learning and community engaged teaching-learning methods/models, use, importance and outcomes
- 4.10 Outcome Based Education (Competency-based Medical/Health Professions Education): Genesis, use, importance and outcomes
- 4.11 Experiential learning, Reflective practice, Feedback and feed-forward, Situated learning, Co-operative learning, Communities of practice
- 4.12 Assessment of students
 - 4.12.1 Blueprinting(Table and specification) : use, importance and outcomes
 - 4.12.2 Bloom's taxonomy of cognitive, psychomotor and affective domains, use and importance
 - 4.12.3 Diagnostic, Formative, Summative and Professional exams
- 4.13 Assessment of knowledge: Selection methods like Multiple Choice Questions, Extended Matching Items and supply methods like Short Answer Question, Problem Based Question, Long Answer Question with or without model answers and marking schemes, unstructured, semi-structured and structured viva-voce examination, advantages and limitations, use and importance, outcomes and its use in quality control
- 4.14 Assessment of performance (in-vitro): Direct observation of skills in the simulated setting, lab, ward etc. with or without checklist, Objective Structured Practical Examination, Objective Structured Clinical Examination, Standardized patients, use and importance, analysis, quality assurance, outcomes and its use in quality control
- 4.15 Assessment of performance (in-vivo): Mini-Clinical Evaluation Exercise (Mini-CEX), Direct Observation of Procedural Skills (DOPS), Case-Based Discussion (CbD), OSATS/ PBA, Multi-Source feedback (360 degree evaluation) use and importance for competency based health professions education, analysis, quality assurance, outcomes and its use in quality control
- 4.16 Assessment of observable behaviours in small groups e.g. Problem Based Learning sessions, Community Based Learning and Education sessions, Clinical clerkship rotations
- 4.17 Evaluation: Difference between assessment and evaluation, theory of change and its use in health professions education, process and outcome evaluation, qualitative, quantitative and mixed methods used in evaluation of health professions education

Paper I

Part II: Technical Subject

Section (C) General Pediatric - 25 Marks

1. Growth development and behavior

- 1.1 Physical and psychosocial growth and development of normal child
- 1.2 Disorders of growth
- 1.3 Delay and deviations of development
- 1.4 Assessment of growth and development
- 1.5 Disorders of psychological development
- 1.6 Common behavioral problems of preschool children
- 1.7 Common speech disorders
- 1.8 Common Paediatric Behavioural and Psychiatric disorders

2. Nutrition, Fluid and Electrolytes

- 2.1 Normal nutrition in infancy and childhood
- 2.2 Common nutritional disorders in childhood
- 2.3 Nutrition supplementation programs
- 2.4 Acid base balance
- 2.5 Maintenance and replacement therapy of fluid and electrolytes

3. Preventive pediatrics

- 3.1 Immunizations
- 3.2 Prevention and management of common disorders of childhood
- 3.3 Prevention and management of poisonings and accidents

4. Social pediatrics

- 4.1 School health services
- 4.2 National health programmes related to maternal and child health
- 4.3 Community health services for the maternal and childhood
- 4.4 Organizing health care delivery and referral systems for children

5. Genetics

- 5.1 Genetic and chromosomal disorders
- 5.2 Inborn errors of metabolism
- 5.3 Genetic counseling including antenatal diagnosis
- 5.4 Gene therapy

6. Neonatology

- 6.1 Management of normal, high risk and sick neonates

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- 6.2 Monitoring and ventilatory support of the sick neonates
- 6.3 Foetal disorders
- 6.4 Perinatology
- 6.5 Preventive neonatology

7. Adolescent Medicine

- 7.1 Adolescent development
- 7.2 Adolescent health problems

8. Infectious diseases

- 8.1 Diagnosis and management of common infectious diseases (bacterial, viral, parasitic, fungal) in the pediatric age group and their management principles

9. Immunity, allergy and rheumatic disorders of Paediatric age group

10. System based pediatrics

- 10.1 Diagnosis and management of common diseases/ disorders affecting Gastro intestinal, hepatobiliary, cardiovascular, respiratory, endocrine, blood and lymphoreticular, genitourinary, nervous and musculoskeletal systems

11. Eye, ear, nose and throat

- 11.1 Diagnosis and management of common disorders of eye, ear, nose and throat in the pediatric age group

12. Paediatric Dermatology

- 12.1 Common dermatological problems in Children
- 12.2 Sexually transmitted diseases, AIDS

13. Paediatric Surgery

- 13.1 Diagnosis and supportive management of common surgical disorders of neonates, infants and children and appropriate referral

14. Pediatric Emergencies

- 14.1 Diagnosis and management of common pediatric emergencies such as coma, convulsions, shock, acute severe asthma, cyanotic spells, poisonings, accidents etc. Pediatric advance life support skills, cardiovascular support and stabilization

15. Neoplastic disorders and tumors

- 15.1 Epidemiology, principles of diagnosis and treatment of common Paediatric neoplastic disorders (leukaemias, lymphomas, neuroblastoma, soft tissue sarcoma, retinoblastoma) and benign tumors

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Section (D) Pediatric Nephrology - 25 Marks

1. Renal anatomy and physiology

- Nephron
- Renal function
- Urinary acidification

2. Diagnostic evaluation

- Clinical feature of renal disease
- Urine examination
- Blood investigations
- Imaging studies
- Renal biopsy

3. Radionucleotide studies

- DTPA renogram
- DMSA renogram

4. Congenital anomalies of the kidney and urinary tract

- Renal agenesis
- Renal dysplasia
- Ectopic kidney
- Crossed renal ectopia
- Horseshoe kidney
- Duplex kidney
- Hypospadias
- Phimosis

5. Fluid, electrolyte and acid base disorder

- Sodium and water homeostasis
- Disorder of potassium homeostasis
- Disorder of calcium homeostasis
- Disorder of phosphate metabolism
- Metabolic acidosis and alkalosis

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6. Acute and rapidly progressive glomerulonephritis

- Post-streptococcal acute glomerulonephritis
- Acute nephritic syndrome
- Acute interstitial nephritis
- Immunoglobulin A nephropathy
- Crescentic glomerulonephritis

7. Systemic vasculitis and lupus nephritis

- Small vessels vasculitis
- ANCA associated small vessel vasculitis
- Medium vessels vasculitis
- Large vessels vasculitis
- Systemic lupus erythematosus

8. Cystic kidney disease

- Simple cyst
- Polycystic kidney disease

9. Asymptomatic proteinuria and hematuria

- Hematuria
- Persistent microscopic hematuria
- Proteinuria

10. Nephrotic syndrome

- Evaluation of patient with nephrotic syndrome
- Frequent relapse and steroid dependent nephrotic syndrome
- Steroid resistant nephrotic syndrome
- Complication in nephrotic syndrome
- Focal segmental glomerulosclerosis
- Mesangial proliferative glomerulonephritis
- Membranoproliferative glomerulonephritis
- Membranous nephropathy
- Outcome in nephrotic syndrome
- Congenital nephrotic syndrome

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11. Acute kidney disease

- Definition and classification
- Epidemiology
- Etiology
- Detection and diagnosis
- Investigation
- Management
- Outcome

12. Hemolytic uremic syndrome

- Etiology and clinical features
- Diagnosis
- Management

13. Urinary tract infection

- Epidemiology
- Clinical features
- Diagnosis
- Treatment
- Imaging studies
- Asymptomatic bacteriuria
- Risk factor and prevention of UTI
- Vesicoureteric reflux
- Reflux nephropathy

14. Tubular disorder

- Renal tubular acidosis
- Condition with fanconi syndrome
- Disorder with renal magnesium wasting

15. Vitamin D refractory rickets

- Vitamin D metabolism
- Vitamin D refractory rickets
- Refractory rickets with primary calcium deficiency and high PTH
- Refractory rickets with phosphate deficiency and high FGF23

16. Hypertension

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- Measurement of blood pressure
- Hypertension and prehypertension
- Management
- Hypertensive emergency
- Essential (primary) hypertension

17. Chronic kidney disease

- Epidemiology
- Diagnostic evaluation and follow-up
- Renal response to nephron loss
- Systemic features
- Management

18. Hemodialysis

- Indication
- Advantage and disadvantage
- Vascular access
- Hemodialysis prescription
- Complications

19. Peritoneal dialysis

- Indication
- Advantages
- Contraindication
- Peritoneal dialysis prescription
- Complication

20. Obstructive uropathy

- Pathophysiology
- Clinical features
- Investigation
- Complication of obstruction

21. Urolithiasis

- Renal calculi

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- Endemic vesical calculi
- Nephrocalcinosis

22. Disorder of micturition

- Voiding disorder
- Enuresis
- Lower urinary tract symptoms
- Incontinence

23. Malignant disorder

- Wilms' tumor

24. Disorder of the newborn

- Normal renal function
- Assessment of renal function
- Acute kidney injury
- Hypertension
- Hematuria
- Urinary tract infection
- Antenatal diagnosis of renal and urinary tract anomalies

27. Prevention of renal diseases

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