

**पाटन स्वास्थ्य विज्ञान प्रतिष्ठान, सेवा आयोग**  
 प्राविधिक सेवा, आँखा रोग समूह, अप्टोमेट्रिक पद, तह ७ को  
 खुला प्रतियोगितात्मक परीक्षाको पाठ्यक्रम  
 एवं परीक्षा योजना

१. प्रथम चरण : – लिखित परीक्षा						पूर्णाङ्क :- २००	
पत्र	विषय	पूर्णाङ्क	उतीर्णाङ्क	परीक्षा प्रणाली		प्रश्नसंख्या X अङ्क	समय
प्रथम	Technical Subject, General Knowledge and Related Legislation	१००	४०	वस्तुगत	बहुवैकल्पिक प्रश्न	५० प्रश्न x २ अङ्क	४५ मिनेट
द्वितीय		१००	४०	विषयगत	छोटो उत्तर लामो उत्तर	४ प्रश्न X ५ अङ्क ५ प्रश्न X १० अङ्क	३ घण्टा
					समस्या समाधान	२ प्रश्न x १५ अङ्क	
२. द्वितीय चरण : – अन्तर्वार्ता							
विषय	पूर्णाङ्क	उतीर्णाङ्क	परीक्षा प्रणाली				समय
अन्तर्वार्ता	३०	-	मौखिक				

**द्रष्टव्य :**

- यो परीक्षा योजनालाई प्रथम चरण (लिखित परीक्षा) र द्वितीय चरण (अन्तर्वार्ता) गरी दुई चरणमा विभाजन गरिएको छ ।
- लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी अथवा नेपाली र अंग्रेजी दुवै हुनेछ ।
- प्रथम र द्वितीय पत्रको पत्रको विषयवस्तु एउटै हुनेछ ।
- प्रथम र द्वितीय पत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ ।
- लिखित परीक्षामा यथासम्भव पाठ्यक्रमका सबै एकाईबाट प्रश्नहरू सोधिनेछ ।
- वस्तुगत बहुवैकल्पिक (Multiple Choice) प्रश्नहरूको गलत उत्तर दिएमा प्रत्येक गलत उत्तर बापत २० प्रतिशत अङ्क कट्टा गरिनेछ । तर उत्तर नदिएमा त्यस बापत अङ्क दिइने छैन र अङ्क कट्टा पनि गरिने छैन ।
- विषयगत प्रश्नमा प्रत्येक पत्र/विषयका प्रत्येक खण्डका लागि छुट्टाछुट्टै उत्तरपुस्तिकाहरू हुनेछन् । परिक्षार्थीले प्रत्येक खण्डका प्रश्नहरूको उत्तर सोही खण्डका उत्तरपुस्तिकामा लेख्नुपर्नेछ ।
- 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 ।
- प्रथम चरणको परीक्षाबाट छनौट भएका उम्मेदवारहरूलाई मात्र द्वितीय चरणको परीक्षामा सम्मिलित गराइनेछ ।
- पाठ्यक्रम लागू मिति :- २०७९/१२/२१

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प्रथम तथा द्वितीय पत्र :-  
प्राविधिक विषय, सामान्य ज्ञान र सम्बन्धित कानूनहरु  
(Technical Subject, General Knowledge and Related Legislation)

**खण्ड (A): Technical Subject**

1. **Basic Science and Organ Systems**

This includes general concepts of the basic medical sciences and help them apply those concepts through correlating the normal structures, their functions and pathological states in relation to clinical presentation, pathophysiology, their diagnosis and management.

**It includes:**

- Basic Anatomy
- Physiology
- Microbiology
- Biochemistry
- Pathology
- Pharmacology
- GI system
- Digestive system
- Respiratory system
- Nervous system
- Cardiovascular system
- Endocrine System
- Reproductive system

2. **Ocular Anatomy and Physiology**

- This section covers:
- Embryology of eye
- Anatomy, physiology, nerve supply and vascular supply pertaining to:
  - Orbit
  - Lids
  - Extra ocular muscles
  - Lacrimal apparatus
  - Conjunctiva
  - Cornea
  - Episclera and Sclera
  - Anterior chamber and its angle structure,
  - Uvea
  - Lens

- Vitreous
- Retina and Optic nerve.

### 3. Physical and geometrical Optics

□ Physical optics includes properties of light such as:

- <sup>TM</sup>Propagation
- <sup>TM</sup>Reflection
- <sup>TM</sup>Refraction
- <sup>TM</sup>Interference
- <sup>TM</sup>Diffraction
- <sup>TM</sup>Polarization
- <sup>TM</sup>Absorption and Scattering
- <sup>TM</sup>LASER, and Photometry along with its application in eye.

□ Geometrical optics includes:

- The phenomenon of image formation by simple lens and lens system including reflection and refraction at plane surface and curved surface,
- Vergence and image attributes and location
- cardinal point
- Thin and thick lenses
- Prism
- Magnification
- Spherical and cylindrical lenses
- Aberration of lenses.

### 4. Visual Science

□ This section should covers:

- Measurement of visual threshold
- Principle and components of visual functions such as visual acuity, contrast sensitivity, light and dark adaptation, spatial vision, temporal vision, color vision
- Eye movements
- Entopic phenomenon,
- Circadian cycles in vision,
- Functional retinal physiology
- Parallel processing
- Striated cortical and extra-striated cortical functions related to processing of visual information, motion detection, signal detection, spatial and temporal perception, binocular space perception
- Organization of all these receptive field structures and neural channeling.

### 5. Ocular Disease

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□ This section cover description, sign and symptoms, assessment Differential diagnosis and management of various ocular diseases such as:

- Unilateral or bilateral red eye
- Gradual loss of vision
- Sudden loss of vision
- Swelling and pain in and around the eye
- Watering of eye
- Dry eye and Ocular surface disorder
- Night blindness
- Leukocoria
- Neurophthalmic conditions
- Abnormal pupillary reactions
- Ocular emergencies
- Congenital disorders
- Degenerative disorders
- Dystrophies,
- Ocular manifestation of systemic diseases
- Optometric management of headache,
- Phakomatosis and tumours.

## 6. Diagnostic and investigative optometry

□ This section should cover related to diagnosis and investigation performed in eye. They includes:

- Measurement of visual acuity at distance and near
- Examination of peripheral and central visual field by available and reliable techniques
- Examination of color vision
- Slit lamp biomicroscopy alone or with the aid of external lens system
- Ultrasonography
- Interferometric examinations
- LASER examinations
- Ophthalmic and optometric Imaging
- Electrophysiological tests.
- Techniques and principle of determination of refractive error for distance and near and assessment of accommodative apparatus.
- Topographic & Tomographic examination
- Specular & Confocal Microscopy

## 7. Ophthalmic and Dispensing Optics

□ This section should cover including various topic related to ophthalmic optics and Dispensing of ophthalmic aids. They include:

- Lens materials

- Characteristics of ophthalmic lens
- Measurement of various lens parameters and powers
- Ophthalmic prisms
- Lens power transposition and verifications
- Various tinted and protective lenses
- Latest ophthalmic lens and designs
- Various lens design and verification in special conditions like aniseikonia, lenticular, aspheric
- Selection of lens and frames
- Face and frame measurement
- Spectacle and frame mounting
- Spectacle fittings and principles
- And practical aspects of lens laying off, edging and frame adjustment
- Special dispensing for different vocations

## 8. Pediatric Optometry and Binocular Vision

- Pediatric optometry should cover:
  - <sup>TM</sup>Visual Development, emmetropization and maturation of vision.
  - <sup>TM</sup>pediatric vision assessment
  - <sup>TM</sup>pediatric refraction
  - <sup>TM</sup>pediatric vision correction
  - <sup>TM</sup>Pediatric vision assessment in special conditions like physical and mental disabilities.
- Binocular vision includes
  - <sup>TM</sup>Principles of eye movement, disorders, assessments and managements.
  - <sup>TM</sup>Principles of muscle actions, field of vision and fixation.
  - <sup>TM</sup>Principles of binocular single vision, various grades of binocular vision.
  - <sup>TM</sup>Motor and sensory adaptation to various oculo-motor disorders, non-strabismic disorders, strabismic disorders, accommodative disorders, vergence disorders, amblyopia and nystagmus.
  - <sup>TM</sup> Management includes optical therapy, non optical therapy, vision therapy and surgical therapy.

## 9. Contact Lens and ocular prosthesis

- This section should cover:
  - <sup>TM</sup>Various anatomical and physiological aspects related to contact lens fittings
  - <sup>TM</sup>Lens optics
  - <sup>TM</sup>Lens design material
  - <sup>TM</sup>Verifications and standards
  - <sup>TM</sup>Solutions and staining related to contact lens fitting and dispensing
  - <sup>TM</sup>Special designed contact lenses

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- <sup>TM</sup> Patient management related to contact lens wear,
- <sup>TM</sup> Complication related to contact lens and special fitting procedures.
- <sup>TM</sup> Ocular Prosthesis materials, design, manufacturing handling and fitting and care

## 10. Low Vision and visual rehabilitation

This section should cover:

- <sup>TM</sup> Definition, disorders causing low vision and visual impairment
- <sup>TM</sup> Examination of low vision patients
- <sup>TM</sup> Assessment techniques
- <sup>TM</sup> Low vision magnification systems
- <sup>TM</sup> Devices, prescribing guidelines
- <sup>TM</sup> Optical and non-optical aids
- <sup>TM</sup> Psychological, behavioral and social counseling
- <sup>TM</sup> Visual rehabilitation and agencies working for blind and visual impairments.

## 11. Community optometry

This section should cover:

- <sup>TM</sup> Introduction to community health, epidemiology
- <sup>TM</sup> Determinants of health and population
- <sup>TM</sup> Environmental sanitation
- <sup>TM</sup> Health behavior, health facilities and institutions, health planning and programs
- <sup>TM</sup> Definition, components, concepts, importance of community health diagnosis
- <sup>TM</sup> Program related to elimination of eye and vision related problems
- <sup>TM</sup> Nutritional deficiencies and its consequence in vision
- <sup>TM</sup> Occupational ocular health hazards and eye protection standards.

## 12 Geriatric optometry and vision care

This section should cover:

- <sup>TM</sup> Anatomic, physiological and visual changes with age
- <sup>TM</sup> Examination of aging patients
- <sup>TM</sup> Various ocular disorder of aging population
- <sup>TM</sup> Management of visual disorders in aging population and counseling.

## 13. Research Methodology and Biostatistics

This section should cover:

- <sup>TM</sup> Basic concepts of research designs.
- <sup>TM</sup> Sampling.
- <sup>TM</sup> Data collection, data analysis, basic biostatistical methods to present data.
- <sup>TM</sup> Proposal writing and report writing.

## 14. Code of Ethics & Practice Management in Optometry

This section should cover:

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- <sup>TM</sup>National health system
- <sup>TM</sup>National eye health policies
- <sup>TM</sup> Practice management
- <sup>TM</sup> Legal issues related to the practice
- <sup>TM</sup> Registration and governance of clinical practices
- <sup>TM</sup> Professionalism and communication
- <sup>TM</sup> Code of conducts of health systems and councils of Nepal.
- <sup>TM</sup> Standards of practice, standards of dispensing visual products.
- <sup>TM</sup> Currents trends in Optometry Practice

**खण्ड (B): General Knowledge and Related Legislation**

1. सामान्य ज्ञान, संस्थागत ज्ञान तथा ऐन, नियमहरू

- 1.1 नेपालको भौगोलिक, ऐतिहासिक, आर्थिक, सामाजिक, सांस्कृतिक र राजनैतिक अवस्था सम्बन्धी सामान्य जानकारी
- 1.2 राष्ट्रिय र अन्तर्राष्ट्रिय महत्वका समसामयिक घटनाहरू : राजनैतिक, आर्थिक, वैज्ञानिक, खेलकूद, सूचना प्रविधि, पुरस्कार, स्वास्थ्य
- 1.3 पाटन स्वास्थ्य विज्ञान प्रतिष्ठान ऐन, २०६४
- 1.4 पाटन स्वास्थ्य विज्ञान प्रतिष्ठानको कर्मचारी सेवाका शर्त र सुविधा सम्बन्धी नियमावली, २०६७
- 1.5 पाटन स्वास्थ्य विज्ञान प्रतिष्ठान आर्थिक प्रशासन नियमावली, २०६७
- 1.6 पाटन अस्पताल संचालन विनियमावली, २०६७
- 1.7 नेपाल स्वास्थ्य सेवा ऐन, २०५३ र स्वास्थ्य सेवा नियमावली, २०५५
- 1.8 नेपाल मेडिकल काउन्सिल ऐन, २०२० र नियमावली
- 1.9 नेपाल नर्सिङ परिषद् ऐन, २०५२
- 1.10 नेपाल स्वास्थ्य व्यवसायी परिषद् ऐन, २०५३

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प्रथम पत्र			
खण्ड	अङ्कभार	प्रश्न संख्या	
		वस्तुगत	विषयगत
A	८०	४० प्रश्न X २ अङ्क = ८०	-
B	२०	१० प्रश्न X २ अङ्क = २०	-
जम्मा		५० प्रश्न X २ अङ्क = १००	-
द्वितीय पत्र			
खण्ड	अङ्कभार	प्रश्न संख्या	
		विषयगत	समस्या समाधान
A	१००	४ प्रश्न X ५ अङ्क = २० ५ प्रश्न X १० अङ्क = ५०	२ प्रश्न x १५ अङ्क = ३०
B	-	-	-
जम्मा		४ प्रश्न X ५ अङ्क = २० ५ प्रश्न X १० अङ्क = ५०	२ प्रश्न x १५ अङ्क = ३०

--- The end ---