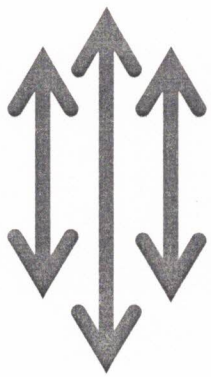
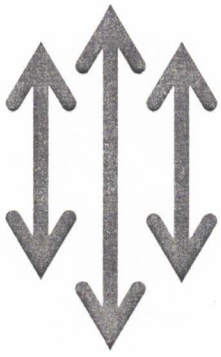
नेपाली सेना

श्री भर्ना छनौट निर्देशनालय, कार्यरथी विभाग,

जंगी अड्डा



प्रा.उ.से. इन्स्ट्रुमेन्ट मेकानिक्स (आन्तरिक) पदको लिखित परीक्षाको पाठ्यक्रम



२०७८

नेपाली सेना

प्रा.उ.से. इन्स्ट्रुमेन्ट मेकानिक्स (आन्तरिक) पदको लिखित परीक्षाको पाठ्यक्रम

समय: ४ घण्टा १५ मिनेट

पूर्णाङ्क : १५०
उत्तीर्णाङ्क : ६०

यो पाठ्यक्रम नेपाली सेनाको प्रा.उ.से. इन्स्ट्रुमेन्ट मेकानिक्स (आन्तरिक) पदको उम्मेदवार छनौट परीक्षाको लागि निर्धारण गरिएको हो । लिखित परीक्षामा सरिक हुने उम्मेदवारहरुको पेशा सम्बन्धी विषयलाई आधारमानी प्रश्नहरु सोधिने छ ।

(क) लिखित परीक्षाको माध्यम नेपाली/अंग्रेजी वा दुवै भाषा हुनेछ ।
(ख) लिखित परीक्षाबाट छनौट भएका उम्मेदवारहरुलाई मात्र अर्को चरणको परीक्षामा सम्मिलित गराईनेछ ।
(ग) प्रश्नपत्र निर्माण गर्दा पाठ्क्रममा समावेश भएका सबै विषयहरुलाई यथासंभव समिटनेछ ।
(घ) बस्तुगत र विषयगत संयुक्त रुपमा पूर्णाङ्क र उत्तीर्णाङ्क कायम गरिनेछ ।
(ङ) बस्तुगत र विषयगत परीक्षाको पाठ्यक्रम एउटै हुनेछ ।
(च) बस्तुगत र विषयगत विषयको लिखित परीक्षा एकैपटक वा छुट्टाछुट्टै गरी लिन सकिनेछ ।
(छ) यो पाठ्यक्रम मिति २०७८/११/२२ गतेबाट लागु हुनेछ ।

लिखित परीक्षाको योजना र पाठ्यक्रम

<table>
<tr><th>विषय</th><th>पूर्णाङ्क</th><th>उत्तिर्णाङ्क</th><th colspan="2">परीक्षा प्रणाली</th><th>प्रश्न संख्या अङ्क</th><th>समय</th></tr>
<tr><td rowspan="3">पेशा सम्वन्धि</td><td>७५</td><td rowspan="3">६०</td><td>बस्तुगत (Objective)</td><td>बहु वैकल्पिक प्रश्न (MCQs)</td><td>७५ प्रश्न x १ अङ्क=७५</td><td>१ घण्टा १५ मिनेट</td></tr>
<tr><td rowspan="2">७५</td><td rowspan="2">विषयगत (Subjective)</td><td>छोटो उत्तर</td><td>१५ प्रश्न x २ अंङ्क =३०
५ प्रश्न x ५ अंङ्क =२५</td><td rowspan="2">३ घण्टा</td></tr>
<tr><td>लामो उत्तर</td><td>२ प्रश्न x १० अङ्क =२०</td></tr>
</table>

प्रा.उ.से. इन्स्ट्रुमेन्ट मेकानिक्स (आन्तरिक) लिखित परीक्षाको पाठ्यक्रम

1. BASIC OPTICS

1.1 OPTICS

Introduction, Light, Source of light, The four Important Theory of Light, Corpuscular Theory, Wave Theory, Properties of Light, Fiber optics, Advantage of fiber optics

1.2 REFLECTION & REFRACTION

Introduction, Laws of reflection, Laws of refraction, Total internal reflection, Application, Reflection at Spherical Surface, BasicTerms, Refraction of Light, Critical Angle

1.3 LENSES

Introduction,Types of lens, Convex lens, Concave lens, Concave mirror, Convex mirror magnification, Power of lens

1.4 LENS ABERRATION & REMEDIES

Introduction, Types of aberration, Monochromatic aberration, Spherical aberration, Coma aberration, Astigmatism, Curvature of Field, Distortion, Chromatic aberration

1.5 COMPUTER CONCEPT

Introduction to Computer System, Operating System, Ms-Word, Ms-Excel & PowerPoint Communication Network: LAN, MAN & WAN, Topologies, Transmission Media (Twisted Pair, Co-axial and Optical Fiber Cable), Router, Switch & Gateway

2. ANGLE MEASUREMENT

2.1 ANGLE MEASURING INSTRUMENT

Introduction, Use

2.2 COMPASS

Use, Construction of compass, Dismantling and assembling,

2.3 FIELD CLINOMETERS

Use, Construction, Dismantling and assembling, Lubrication and cleaning, Replacement of bubble, Fault and remedies

2.4 BINOCULAR CAT EYE

Construction, Optical Layout, Safety Precaution,Cleaning of Components

2.5 BINOCULAR ZOOM (LARGE)

Construction, Safety Precaution,Cleaning of Components

2.6 SIGHT CLINOMETERS MK-IV

Use, Construction, To level the gun, Lubrication and cleaning

2.7 DIRECTOR

Introduction, Basic requirement general, Construction of method measurement

2.8 THEODOLITE

Introduction, Types of theodolite, Technical data, Optical layout, Fault and remedies

3. OBSERVATION AND SIGHTING DEVICES

3.1 RANGE FINDER

Use, Construction and details, Coincidence principle of range finder,

3.2 LASER RANGE FINDER

Introduction, Use, Construction, Working Principle

3.3 FIRE CONTROL INSTRUMENT

Introduction, Use, Purpose, Advantages

3.4 SIGHT HEAVY MORTAR

Construction details, External Parts, Optical Layout, Technical data, Special Feature, Mount & Dismount, Disassemble of Optical Components, Function of Mechanical parts

3.5 DIAL SIGHT 102A

Technical data, Construction, Different no. 9 & 102A, Function of Mechanical Parts

3.6 MOUNT DIAL SIGHT 103A

Construction, Role, Mount & Dismount

3.7 DIAL SIGHT 104A

Technical data, Optical Layout, Maintenance of D/S104A

3.8 MOUNT DIAL SIGHT 104A

Construction, Function

3.9 DIAL SIGHT L1A1

Requirement, Name Of Parts Dial Sight Carrier, Optical Components, Function of Optical Components

3.10 AIMING POINT

Technical data, Name of Component, Optical layout, Mount & Dismount, Safety Precaution, Zeroing with Rifle

3.11 TELESCOPE SIGHT 84MM CARL GUSTAV

Range Setting Knob, Technical Data, Mount & Dismount, Bore Sighting, Safety Precaution

3.12 SIGHTING TELESCOPE OF 40MM RL

Technical Data, Optical layout, Construction, Bore Sighting, Safety Precaution, Fault & Remedy

3.13 HANDHELD BINOCULAR

Construction, Feature, Adjust Inter-papillary Distance, Care of Binocular

4. NIGHT OBSERVATION

4.1 NIGHT VISION

Working Principle of Active Device & Passive Devices, Advantage & Disadvantage, Passive Device, Block Diagram of P N V D, II Tube, Important Features

4.2 THERMAL DEVICE

Thermal Imaging System, DDC, Operation of DDC, Components and cooling procedure of DDC, Features of TI, Working Principle

4.3 HHTI (ELOPE)

General Description, Technical data, Logistic Contains, Name of parts, Caring Pack, Main assay, External view, Internal View, Optical Layout, Control & Indicator, Operating Procedure, Does & Does not, Safety Precaution, Range Measurement, Different Picture Quality by HHTI

4.4 AN/PVS 7B & 7D NVS

Sub Assay, Major Component, Collimation adjustment, Accessories, Removal, Optical layout , Technical data, Fault ,causes & Remedies, Safety precaution, Different Switch position

4.5 AVIATORS (M494)

Technical data, Major component, Main Assay, Mechanical function

4.6 KITE WEAPON SIGHT

Technical data, Components, Operation, Mounting, weapon sight Zeroing, Fault, Causes & Remedies

4.7 A N / P V S -4 NIGHT VISION SYSTEM

Shipping case, Main Assay, Technical data, Control & Indicator, Optical layout & their Function, Reticulel Pattern, Zeroing Test, Advantage, Operation

4.8 NIGHT VISION MONOCULAR GOGGLES NVS-14

Specification, Operation

4.9 LAM 10 M

Accessories, Technical data, Operating Procedure, Trouble Shooting

5. WORK SHOP ADMINISTRATION & MAINTENANCE MANAGEMENT

5.1 INTRODUCTION TO MANAGEMENT

Definition and importance of Management

5.2 FUNCTION OF MANAGEMENT

Planning – nature, types forecasting and Budgeting, Organizing-nature, structure and types, Staffing- importance and need for proper staffing, types of staff, Directing and motivating-nature varying approach to direct, directing and motivating, Controlling – nature, comparing, performance with standards, corrective action

5.3 INDUSTRIAL HYGIENE & SAFETY

Introduction to industrial hygiene and safety, Cost and liability of industrial hygiene and safety, Thermal pollution its control, effects on human organism and productivity, General accident, prevention and safety in Industry

5.4 SPARE PARTS MANAGEMENT

Survey on spare practices, Reliability and quality of spares, Spare parts procurement procedure, Storage and prevention of spares, Management of absolute spare parts, Inventory control of spare parts, Reconditioning of Equipment and spares

5.5 MAINTENANCE MANAGEMENT

Maintenance objective and function, Maintenance system, Inspection and lubrication

माथि उल्लेखित पाठ्यक्रमका एकाइहरुबाट सोधिने प्रश्नहरुको संख्या निम्नानुसार हुनेछ

S.No.	Topic	ObjectiveQuestion and Marks	SubjectiveQuestionandmarks		
			VeryShort Question and Marks	Short Question and Marks	Long Question andMarks
1	Unit-1	15x1=15	5x2=10	1 X5 =5	1x10=10
2	Unit-2	10x1=10	2x2=4	1 X5 =5	
3	Unit-3	20x1=15	3x2=6	1 X5 =5	
4	Unit-4	20x1=25	3x2=6	1 X5 =5	1x10=10
5	Unit-5	10x1=10	2x2=4	1 X5 =5	
	Total	**75x1=75**	**15 X2 = 30**	**5 X5 = 25**	**2 X10 = 20**

प्रा.उ.से. इन्स्ट्रुमेन्ट मेकानिक्स (आन्तरिक) पदको प्रयोगात्मक परिक्षाको पाठ्यक्रम

समय :९० मिनेट

पूर्णाङ्कः ५०
उत्तीर्णाङ्कः २५

S.No.	Topic	Marks	TimeandMinutes
1	Components Identification and It's Application	15	20
2	Test and adjustment	10	15
3	Storage system	5	15
4	Sighting Instrument Mount and Dismount in Weapon with bore sighting test	10	15
5	Fault and Remedy, Focusing, Parallax, Definition, Verticality of Graticule, collimation And Causes of poor definition Test	5	15
6	Workshop Administration	5	10
	Total	**50**	**90**

१. **Components Identification and It's Application:**

परिक्षार्थीलाई Layout गरी राखिएका बिभिन्न Optical Parts को Technical नाम लेख्नपुनेछ ।दिईएको Parts कहां कहां प्रयोग हुन्छ भन्ने समेत खुलाउनु पर्नेछ । यसमा ५ प्रकारका सामानहरु देखाईनेछ । प्रत्येक नाम र प्रयोग सहित भएमा ३ अंक प्रदान गरिनेछ ।

२. **Test and adjustment:**

परिक्षार्थीहरुले Testing Equipment को सहायताले कुनै उपकरणको मर्मत पछि गर्नु पर्ने Test हरु मध्ये कुनै एउटा Test गरी देखाउनु पर्नेछ ।सहि उत्तरको अंक १० प्रदान गरिनेछ ।

३. **Storage system:**

Optical Instrument हरुको Storage System बारे ५ वटा प्रश्नहरु सिधिने छ । उत्तर सहि भएमा १ अंकको दरले अंक प्रदान गरिनेछ ।

४. **Sighting Instrument Mount and Dismount in Weapon with bore sighting test:**

परीक्षार्थीलाई कुनै एउटा Sighting Instrument लाई हतियारमा Mount गरी देखाउनु पर्नेछ । सहि प्रकृया र सुरक्षात्मक उपायाहरुलाई अवलम्बन गर्दै हतियारमा Mount गरी Bore Sighting गर्ने प्रकृया देखाएमा १० अंक प्रदान गरिनेछ ।

५. **Fault and Remedy, Focusing, Parallax, Definition, Verticality of Graticule, collimation and Causes of poor definition Test**

परिक्षार्थीलाई उल्लेखित Test हरु मध्ये कुनै ५ वटा Test हरुको उदेश्य सोधिने छ । ति Test हरुमा Adjustment गर्ने तरिकाहरु समेत बताउनु पर्नेछ । सहि उत्तरको ५ अंक प्रदान गरिनेछ ।

६. **Workshop Administration:**

परिक्षार्थीलाई Workshop Administration सम्बन्धमा Viva प्रश्न सोधिनेछ ।उक्त Viva मा ५ वटा प्रश्नहरु सोधिनेछ । प्रत्येक सहि उत्तरको अंक १ प्रदान गरिनेछ ।

The End