

लोक सेवा आयोग
व्यवस्थापिका संसद, सेवा, प्राविधिक समूह, राजपत्र अनंकित द्वितीय श्रेणी, मेकानिक्स पदको खुला प्रतियोगितात्मक परीक्षाको
पाठ्यक्रम

पाठ्यक्रमको रूपरेखा:- यस पाठ्यक्रमको आधारमा निम्नानुसार चरणमा परीक्षा लिइने छ :

प्रथम चरण :-	लिखित परीक्षा	पूर्णाङ्क :- ५०
द्वितीय चरण :-	(क) प्रयोगात्मक	पूर्णाङ्क :- ५०
	(ख) अन्तर्वार्ता	पूर्णाङ्क :- २०

प्रथम चरण – लिखित परीक्षा योजना (Examination Scheme)

पत्र/विषय	पूर्णाङ्क	उत्तीर्णाङ्क	परीक्षा प्रणाली	प्रश्न संख्या x अङ्कभार	समय
सेवा सम्बन्धी	५०	२०	वस्तुगत बहुवैकल्पिक (Multiple Choice)	५० प्रश्न X १ अङ्क = ५०	४५ मिनेट

द्वितीय चरण

विषय	पूर्णाङ्क	उत्तीर्णाङ्क	परीक्षा प्रणाली	प्रश्न संख्या x अङ्कभार	समय
(क) प्रयोगात्मक परीक्षा	५०	२५	प्रयोगात्मक	५ प्रश्न X १० अङ्क = ५०	१ घण्टा ३० मिनेट
(ख) अन्तर्वार्ता	२०				

द्रष्टव्य :

१. लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी अथवा नेपाली र अंग्रेजी दुवै हुन सक्नेछ ।
२. लिखित परीक्षामा यथासम्भव पाठ्यक्रमका एकाईहरुमा उल्लेख भए अनुसारका प्रश्नहरु सोधिनेछ ।
३. वस्तुगत बहुवैकल्पिक (Multiple Choice) प्रश्नहरुको गलतउत्तर दिएमा प्रत्येक गलत उत्तर बापत २० प्रतिशत अङ्क कट्टा गरिनेछ । तर उत्तर नदिएमा त्यस बापत अङ्क दिइने छैन र अङ्क कट्टा पनि गरिने छैन ।
४. यस पाठ्यक्रम योजना अन्तर्गतका पत्र/विषयका विषयवस्तुमा जेसुकै लेखिएको भएता पनि पाठ्यक्रममा परेका कानून, ऐन, नियम तथा नीतिहरु परीक्षाको मितिभन्दा ३ महिना अगाडि (संशोधन भएका वा संशोधन भई हटाईएका वा थप गरी संशोधन भई) कायम रहेकालाई यस पाठ्यक्रममा परेको सम्झनु पर्दछ ।
५. लिखित परीक्षाबाट छनौट भएका परीक्षार्थीहरुले मात्र प्रयोगात्मक परीक्षा र अन्तर्वार्तामा भाग लिन पाउने छन् ।
६. प्रयोगात्मक परीक्षा र अन्तर्वार्ता यथासम्भव एकै दिनलिइनेछ । प्रयोगात्मक परीक्षामा उत्तीर्ण हुने परीक्षार्थीहरुको मात्र तीनै भागको परीक्षाको प्राप्ताङ्क जोडी योग्यताक्रम अनुसार परीक्षाफल प्रकाशित गरिनेछ ।
७. पाठ्यक्रमलागू मिति : २०७५/०३/०७

पुनश्च : प्रयोगात्मक परीक्षा संचालन गर्न सम्पूर्ण साधन श्रोत उपलब्ध गराउने दायित्व माग गर्ने निकायमा रहनेछ ।

पत्र/ विषय :- सेवा सम्बन्धी

- 1. Workshop Practices 8%**
 - 1.1. Basic knowledge of measuring instruments - Scale, Tri-square, Bevel Protractor Vernier Caliper, Micrometer, Gauges and Filler gauges, Multimeter
 - 1.2. Basic knowledge of Metric, FPS and SI Unit
 - 1.3. Basic knowledge of hand tools and their applications
 - 1.4. Basic knowledge of Lathe, Milling, Shaper, Grinding and Drilling Machine
 - 1.5. Function of cutting fluids, its types and qualities of a good cutting fluids
 - 1.6. Basic knowledge of pneumatic tools
 - 1.7. Basic knowledge of lifting devices

- 2. Welding and Sheet Metal Works 6%**
 - 2.1. Different types of welding procedure and their applications
 - 2.2. Welding equipment, tools, accessories and types of electrodes
 - 2.3. Basic knowledge of Arc welding and Oxy-acetylene welding
 - 2.4. Welding defects, causes and remedies
 - 2.5. Principle, Tools, Equipment and Procedure of soldering, brazing and riveting
 - 2.6. General Fitting - Male and Female Joints by Marking, Sawing, Chiseling, Cutting, Joining
 - 2.7. Marking, Cutting, Folding, Bending and Joining of Sheet Metal

- 3. Types of Vehicles 4%**
 - 3.1. Hatchback
 - 3.2. Saloons/Sedans
 - 3.3. Sports Utility Vehicles (SUV)
 - 3.4. Pickup trucks
 - 3.5. Vans
 - 3.6. Ambulances
 - 3.7. Bulletproof Vehicles

- 4. Internal Combustion (I.C.) Engine 8%**
 - 4.1. Two stroke and four stroke engines
 - 4.2. Petrol and Diesel engines
 - 4.3. Main parts of engine and its functions
 - 4.4. Identification of symptoms for engine overhaul
 - 4.5. Superchargers and Turbochargers
 - 4.6. Trouble diagnosis, testing and servicing of I.C. engine

- 5. Fuel system of I.C. Engine 6%**
 - 5.1. Function of carburetors and its maintenance
 - 5.2. Electronic fuel injection system
 - 5.3. Diesel fuel injection systems

- 5.4. Function of fuel injection pump
- 5.5. Types of fuel injection pump
- 5.6. Trouble diagnosis, testing and servicing of fuel injection pump

6. Cooling System **6%**

- 6.1. Importance and purpose of cooling system
- 6.2. Types of cooling system
- 6.3. Component of cooling system and their function
- 6.4. Knowledge of anti-freeze
- 6.5. Trouble diagnosis, testing and servicing of cooling system

7. Brake System **6%**

- 7.1. Purpose of brakes in a motor vehicle
- 7.2. Types of brakes
- 7.3. Types of brake oils
- 7.4. Component of braking system and their function
- 7.5. Trouble diagnosis, testing and servicing of braking system

8. Frame, Chassis and Body **2%**

- 8.1. Basic understanding of Frame, Chassis and Body
- 8.2. Function of Frame and Body
- 8.3. Types of chassis frames
- 8.4. Classification of chassis

9. Suspension System **2%**

- 9.1. Introduction and use of suspension system
- 9.2. Importance of suspension system
- 9.3. Types of suspension system
- 9.4. Component of suspension system
- 9.5. Trouble diagnosis, testing and servicing of suspension system

10. Steering System **6%**

- 10.1. Introduction to steering system
- 10.2. Mechanism of power steering
- 10.3. Troubleshooting and maintenance of steering system
- 10.4. Wheel alignment and its importance

11. Transmission System **6%**

- 11.1. Introduction to manual and automatic transmission
- 11.2. Function of gear box, clutch, torque convertor, propeller shaft, universal joint, differential, axle
- 11.3. Trouble diagnosis, testing and servicing of transmission system

- 12. Wheels and Tyres** **4%**
- 12.1. Types of wheels and tyres
 - 12.2. Importance of wheel balancing
 - 12.3. Tyre sizes and rating
 - 12.4. Trouble diagnosis, testing and servicing of tyres and wheels
- 13. Maintenance of Vehicles** **6%**
- 13.1. Basic knowledge on maintenance system
 - 13.2. Importance of maintenance
 - 13.3. Use of manufacturer's manual (owners and workshop manual)
 - 13.4. Basic knowledge on parts catalogue
- 14. Auto Electrical System** **6%**
- 14.1. Electrical circuit (parallel, series connections), components, symbols, wiring diagrams
 - 14.2. Battery: testing, diagnosis, charging and replacement
 - 14.3. Knowledge about lights and other component operated by electricity
 - 14.4. Fuses and wiring system in vehicles
 - 14.5. Starting system: trouble diagnosis, testing and servicing
 - 14.6. Charging system: trouble diagnosis, testing and servicing
 - 14.7. Ignition system: components, timing and spark plugs
 - 14.8. Lights, warning signals, drivers information and control devices in instrument panel
- 15. Record Keeping** **4%**
- 15.1. Importance of record keeping
 - 15.2. Basic knowledge of maintenance Job Card
 - 15.3. Record keeping of replaced parts
- 16. Safety Practices** **4%**
- 16.1. Importance of safety
 - 16.2. Types of safety
 - 16.3. Safety tools and devices in workshops
 - 16.4. Safety tools and devices in vehicles
- 17. Lubricants** **6%**
- 17.1. Importance and function of lubricants
 - 17.2. Types and properties of lubricants
 - 17.3. Grades of lubricants
 - 17.4. Disposal of used lubricants
- 18. Air Conditioning** **4%**
- 18.1. Air conditioning system

- 18.2. Air conditioning equipment, component and controls
- 18.3. Types of refrigerants
- 18.4. Safety precautions
- 18.5. Trouble diagnosis, testing and servicing of Air-conditioning system

19. Electric Vehicles (EVs) 2%

- 19.1. Basic concept : Working Principle of Electric Vehicle
- 19.2. Types of EVs: All electric vehicles (AEV), Plug-in hybrid electric vehicles (PHEV)
- 19.3. Types of Batteries commonly used in EVs
- 19.4. Charging EVs

20. Vehicular Pollution 4%

- 20.1. Emission standard in Nepal
- 20.2. Major pollutants created by vehicles
- 20.3. Measures to control vehicular pollution

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नमून प्रश्नहरू

- १. भल्व ट्यापेट क्लिरेन्स (valve tappet clearance) मापन गर्न के प्रयोग गरिन्छ ?
 - A) फिलर गज (Feeler gauge)
 - B) भरनियर क्यालिपर (Vernier caliper)
 - C) स्क्रू पिच गज (Screw pitch gauge)
 - D) स्केल(Scale)
- २. अक्सिजनग्याँस सिलिण्डरमा कुन रंग लगाइएको हुन्छ ?
 - A) कालो
 - B) सेतो
 - C) रातो
 - D) पहेलो
- ३. तलकामध्ये कुनचाँही ईन्जिनको भागहोइन् ?
 - A) पिष्टन
 - B) रोटर हेड
 - C) भल्भ गाइड
 - D) कम्प्रेसन रिड
- ४. तलकामध्ये कुनचाँहीले multigrade oil लाई ईङ्कित गर्छ ?
 - A) SAE 30
 - B) API SF
 - C) SAE20W-50
 - D) API 50
- ५. तलका मध्ये कुन चाँही personal safety device होइन् ?
 - A) जुता
 - B) चस्मा
 - C) फ्यान बेल्ट कभर
 - D) ग्लोब

प्रयोगात्मक परीक्षा (Practical Exam) को लागि पाठ्यक्रम

मेकानिक्सको लागि (For Mechanics)

1. Use of Personal Protective equipments (PPE)
2. Identification of hand tools and workshop equipment
3. Maintenance of filters (Air, fuel, oil)
4. Top-up of lubricant
5. Adjustment / Replacement of components of brake system
6. Adjustment / Replacement of belts
7. Greasing of vehicle
8. Repair and maintenance of fuel system
9. Usage of adhesive used in repair work
10. Identification of different spare parts
11. Battery connection (parallel / series)
12. Adjustment / Replacement of components of clutch system
13. Reading and understanding of workshop/service manual
14. Identification of welding tools and equipment
15. Arc welding exercise: single v, butt welding, fillet welding
16. Oxy-acetylene welding, cutting, brazing and soldering
17. Identification of electrodes in terms of size and material
18. Identification of air-condition components in a vehicle

प्रयोगात्मक परीक्षाका नमुना प्रश्नहरु
(Sample questions of Practical Test)

मेकानिक्सको लागि(For Mechanics)

१. दिईएका औजारहरु पहिचान गर्नुहोस् ।
२. दिईएको एयर फिल्टर(air filter) लाई सफा गरी फिट गर्नुहोस् ।
३. ईन्जिन आयल थप गर्नुहोस् ।
४. ह्वील सिलिण्डर रिप्यर किट बदल्नुहोस् ।
५. फ्यूल सिस्टममा भएको हावा फाल्नुहोस् ।
६. दिईएका वेल्डिङ औजारहरु पहिचान गर्नुहोस् ।
७. आर्क वेल्डिङबाट दिईएको वर्कपिस (work piece) जोड्नुहोस् ।
८. दिईएको इलेक्ट्रोडको धातु पहिचान गर्नुहोस् ।
९. ग्यास वेल्डिङबाट दिईएको वर्कपिस (work piece) जोड्नुहोस् ।
१०. ग्यास कटरबाट दिईएको प्लेट काट्नुहोस् ।