

लोक सेवा आयोग
नेपाल इन्जिनियरिङ्ग सेवा, मेकानिकल समूह, निर्माण उपकरण संभार उपसमूह, राजपत्र अनंकित प्रथम श्रेणी, सिनियर 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	१० प्रश्न X ५ अङ्क = ५०	१ घण्टा ३० मिनेट
(ख) अन्तर्वार्ता	२०				

द्रष्टव्य :

- लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी अथवा नेपाली र अंग्रेजी दुवै हुन सक्नेछ ।
- लिखित परीक्षामा यथासम्भव पाठ्यक्रमका सबै एकाईबाट प्रश्नहरु सोधिनेछ ।
- वस्तुगत बहुवैकल्पिक (Multiple Choice) प्रश्नहरुको 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 ।
- यस पाठ्यक्रम योजना अन्तर्गतका पत्र/विषयका विषयवस्तुमा जेसुकै लेखिएको भए तापनि पाठ्यक्रममा परेका कानून, ऐन, नियम तथा नीतिहरु परीक्षाको मिति भन्दा ३ महिना अगाडि (संशोधन भएका वा संशोधन भई हटाईएका वा थप गरी संशोधन भई) कायम रहेकालाई यस पाठ्यक्रममा परेको सम्भन्नु पर्दछ ।
- लिखित परीक्षाबाट छनौट भएका परीक्षार्थीहरुले मात्र प्रयोगात्मक परीक्षा र अन्तर्वार्तामा भाग लिन पाउने छन् ।
- प्रयोगात्मक परीक्षा र अन्तर्वार्ता यथासम्भव एकै दिन लिइनेछ । प्रयोगात्मक परीक्षामा उत्तीर्ण हुने परीक्षार्थीहरुको मात्र तीनै भागको परीक्षाको प्राप्ताङ्क जोडी योग्यताक्रम अनुसार परीक्षाफल प्रकाशित गरिनेछ ।
- पाठ्यक्रम लागू मिति : २०७२/११/१७ देखि

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

पत्र/ विषय :- सेवा सम्बन्धी

1. Workshop Practices

- 1.1. Measuring Instruments - Scale, Try square, Bevel Protractor, Vernier Caliper, Micrometer, Gauges and Filler Gauges; Metric, FPS and SI Unit
- 1.2. Hand tools and their applications
- 1.3. Basic knowledge of Lathe, Milling, Shaper, Grinding and Drilling Machine

2. Engineering Graphics and Machine Drawing

- 2.1. Finding out the missing views from two given projection and dimensioning
 - 2.1.1. Missing views of prismatic and cylindrical work pieces
 - 2.1.2. Missing views of pyramidal, conical, cylindrical cut work pieces
- 2.2. Isometry drawing of machine parts including sections
- 2.3. Drawing of joints, drawing exercises and orthographic projection

3. Welding and Sheet Metal Works

- 3.1. Different types of welding and their applications
- 3.2. Welding equipment, tools, accessories and types of electrodes
- 3.3. Soldering and Brazing
- 3.4. Welding defects, causes and remedies
- 3.5. General Fitting - Male & Female Joints by Marking, Sawing, Chiseling, Cutting, Joining
- 3.6. Cutting, Folding, Bending of Sheet Metal

4. Construction Equipment Types and Their Major Components

- 4.1. Dozer, Loader, Excavator, Grader, Crane and Roller
- 4.2. Dragline Machine
- 4.3. Pile Drive Machine

5. Engines

- 5.1. Classification of engine
- 5.2. Working principle of two stroke cycle and four stroke cycle engine
- 5.3. Functions of engine components
- 5.4. Identification of need of engine overhaul
- 5.5. Purpose and function of super charger and turbo charger
- 5.6. Troubleshooting

6. Thermodynamics

- 6.1. Terms used in thermodynamics
- 6.2. First and Second law of thermodynamics
- 6.3. Otto cycle and diesel cycle

7. Cooling System

- 7.1. Introduction to cooling system

- 7.2. Purpose of cooling system
- 7.3. Working principle of cooling system
- 7.4. Components of cooling system
- 7.5. Coolants, its types and properties
- 7.6. Troubleshooting

8. Brake System

- 8.1. Purpose of brakes in equipment
- 8.2. Classification of brakes and their functions
- 8.3. Components of brake system
- 8.4. Troubleshooting

9. Suspension System

- 9.1. Introduction to suspension system
- 9.2. Classification of suspension system
- 9.3. Working principle and components of suspension system
- 9.4. Troubleshooting

10. Steering System

- 10.1. Introduction to steering system
- 10.2. Types of steering system
- 10.3. Operation of power steering
- 10.4. Troubleshooting

11. Transmission System

- 11.1. Function of clutch
- 11.2. Introduction and purpose of Propeller shaft and Universal joint
- 11.3. Function of Gear Box
- 11.4. Knowledge about operation of Torque Converter
- 11.5. Working principle and components of automatic transmission
- 11.6. Component of final drive and its functions

12. Hydraulic System

- 12.1. Introduction to Hydraulic System
- 12.2. Components of Hydraulic System and their function
- 12.3. Knowledge about Hydraulic Hose and Pipe

13. Starting System

- 13.1. Introduction and function of starting system
- 13.2. Function of different parts of starting system
- 13.3. Troubleshooting

14. Track, Wheels and Tyre

- 14.1. Introduction to track, wheel and tyres

- 14.2. Types of wheel, tyres and rating of tyres
- 14.3. Advantages and disadvantages of radial ply and cross ply tyres
- 14.4. Comparison between wheel mounted and track mounted machine
- 14.5. Troubleshooting of track, wheel and tyres

15. Fuel, Lubricants and Filters

- 15.1. Different types of fuels and lubricants used in equipment
- 15.2. Application and changing interval of lubricants
- 15.3. Knowledge of changing of Air, Fuel, Engine Oil, Hydraulic and Transmission filter

16. Electrical System

- 16.1. Maintenance of the battery
- 16.2. Lights used in equipment and vehicles
- 16.3. Fuses and wiring in equipment and vehicles
- 16.4. Electrical system and component used in equipments and vehicles
- 16.5. Basic Knowledge of Motors and Generators (electro-mechanical principle)

17. Air Conditioning

- 17.1. Introduction and lay out of air conditioning system
- 17.2. Introduction and function of different components of air conditioning
- 17.3. Types of refrigerant
- 17.4. Troubleshooting

18. Emission Control System

- 18.1. Purpose and importance to emission control system
- 18.2. Vehicle emission norms and standards
- 18.3. Function and working principle of emission control system and devices

19. Maintenance System

- 19.1. Types of maintenance system
- 19.2. Importance of maintenance
- 19.3. Advantage and disadvantage of different maintenance system

20. Record Keeping

- 20.1. Importance of record keeping
- 20.2. Knowledge of maintenance Job Card
- 20.3. Basic knowledge of operation log sheet
- 20.4. Use of parts catalogue/workshop manual
- 20.5. Depreciation and its types
- 20.6. Methods of estimation
- 20.7. Costing and pricing

21. Safety Practices

- 21.1. Safety : Types and importance
- 21.2. Safety tools and devices

प्रयोगात्मक परीक्षा (Practical Exam) को लागि पाठ्यक्रम

1. Identification of hand tools and special tools.
2. Identification of main components and parts of machine.
3. Identification of major specifications of machine
4. Identification, handling and storing of different lubricants and fuels
5. Identification and uses of safety tools and devices
6. Uses of lifting and hoisting devices
7. Changing of hydraulic pipe, hose and grease nipples
8. Change of oil/fuel/air/hydraulic/transmission filter and lubricants.
9. Servicing of cooling system.
10. Servicing of fuel system.
11. Servicing of clutch system.
12. Servicing of brake system.
13. Steering /Hydraulic system servicing.
14. Servicing of minor electrical system components.
15. Adjustment of fuel injection pump
16. Adjustment of tappet clearance
17. Adjustment of fuel injection pump timing
18. Use of workshop manuals and parts catalog
19. Use of drill machine
20. Maintenance of undercarriage of construction equipment
21. Testing of nozzle injector

प्रयोगात्मक परीक्षाका नमुना प्रश्नहरू
(Sample questions of Practical Test)

१. दिईएका औजारहरू 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 ।