

लोक सेवा आयोग
नेपाल इञ्जिनियरिङ्ग सेवा, मेकानिकल इञ्जिनियरिङ्ग समूह, जनरल मेकानिकल, एभिएशन मेकानिकल
र निर्माण उपकरण संभार उपसमूह, राजपत्र अनंकित प्रथम श्रेणी पद पदको
खुला प्रतियोगितात्मक परीक्षाको पाठ्यक्रम

यस पाठ्यक्रमलाई दुई भागमा विभाजन गरिएको छ ।

भाग	परीक्षा	विषय	पूर्णाङ्क	प्रश्न संख्या	समय	परीक्षा प्रणाली	उत्तीर्णाङ्क
१	लिखित	सेवा सम्बन्धी	१००	५०	४५ मिनेट	वस्तुगत बहुउत्तर (Multiple Choice)	४०
२	अन्तर्वार्ता		२०				

१. यथासम्भव पाठ्यक्रमका सबै एकाईवाट प्रश्नहरु सोधिनेछन् ।
२. लिखित परीक्षामा गल्ती गरेको प्रश्नोत्तरका लागि २० प्रतिशत अङ्क कट्टा गरिने छ ।
३. यस पाठ्यक्रममा जेसुकै लेखिएको भएता पनि पाठ्यक्रममा परेका ऐन, नियमहरु परीक्षाको मिति भन्दा ३ महिना अगाडि (संशोधन भएका वा संशोधन भई हटाइएका वा थप गरी संशोधन भई) कायम रहेकालाई यस पाठ्यक्रममा परेको सम्झनु पर्दछ ।
४. पाठ्यक्रम लागू हुने मिति २०५१।४।१९

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र निर्माण उपकरण संभार उपसमूह, राजपत्र अनंकित प्रथम श्रेणी पद पदको
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समय :- ४५ मिनेट

प्रश्न संख्या :- ५०

पूर्णाङ्क :- १००

1. Civil Service Act, 2049 and Regulation, 2050

2. Machine Drawing

2.1 Finding out the missing views from two given projection and dimensioning

2.1.1 Missing views of prismatic work pieces

2.1.2 Missing views of cylindrical work pieces

2.1.3 Missing views of pyramidal, conical, cylindrical cut work pieces

2.2 Isometry drawing of machine parts including sections

2.3 Drawing of joints

2.3.1 Permanent joints

2.3.2 Temporary joints

2.3.3 Drawing Exercises

2.3.3.1 Nut bolt and threaded joints

2.3.3.2 Riveted joints

2.3.3.1 Welded joints and symbols

2.3.3.1 Gears, Keys and Spline joints

2.3.4 Orthographic projection

3. Heat Engines

3.1 Different types of heat engines

3.2 Different cycles involved in heat engines

3.3 Basic difference in Steam Engine and Automotive engines

3.4 Different types of power plants (engine) used in civil Aircraft

4. Thermodynamics

4.1 General

4.1.1 Boyle's law, Charles' law and combined gas law

4.1.2 Characteristics of gas constant

4.1.3 Terms used in thermodynamics

4.2 First law of thermodynamics

4.2.1 Definition of the first law

4.2.2 Total internal energy

4.2.3 Mechanical equivalent of heat engine

4.3 Second law of thermodynamics

4.3.1 Definition of the second law

4.3.2 Thermal efficiency of heat engine

4.4 Thermodynamics Properties of Fluid (Definitions only)

4.4.1 Internal energy

- 4.4.2 Enthalpy
- 4.4.3 Entropy
- 4.4.4 Specific heat at constant volume
- 4.4.5 Specific heat at constant pressure
- 4.5 Basic thermodynamics process
 - 4.5.1 Constant volume process
 - 4.5.2 Constant pressure process
 - 4.5.3 Constant temperature process
 - 4.5.4 Adiabatic process
 - 4.5.5 Polytropic process
- 4.6 Petrol and Diesel Engine Cycles
 - 4.6.1 Constant volume cycle
 - 4.6.2 Constant pressure cycle
 - 4.6.3 Mixed cycle
- 5. Basic Industrial Management**
 - 5.1 Labour law
 - 5.2 Rights of Unions
 - 5.3 wages and compensation
 - 5.4 Labour and Management relations
 - 5.5 Basic functions of ILO
 - 5.6 Industrial Hygiene and safety
 - 5.7 Industrial Policy and Act, 2049
 - 5.8 Basic functions of ICAO
- 6. Basic Knowledge of Electro- Mechanical Principle**
 - 6.1 Basic Knowledge of AC and DC Motors
 - 6.2 Basic Knowledge of Generator
- 7. Industrial Boiler**
 - 7.1 Basic working principle
 - 7.2 Common types of Boilers
 - 7.3 Boilers Fules
 - 7.4 Boilers Efficiency
- 8. Estimating and costing**
 - 8.1 General
 - 8.1.1 Concept of profitability, break-even point, return on investment, liability, assets, fixed cost, variable cost, fixed capital, working capital equity, depreciation and amortization
 - 8.1.2 Elements of cost and classification
- 9. Applied Mechanics**
 - 9.1 Statics
 - 9.1.1 Coplaner system of intersecting forces
 - 9.1.2 Coplaner parallel forces, the moment of a force
 - 9.1.3 Centre of Gravity

- 9.1.4 Friction
- 9.2 Kinematics
 - 9.2.1 Definition of technical terms: speed, velocity, acceleration, distance traversed and their units
 - 9.2.2 The trajectory of particles, distance and time
 - 9.2.3 Rectilinear motion of a particle
- 9.3 Composition of a simple motion of a particle
 - 9.3.1 Curvilinear motion of a particle
 - 9.3.2 Simple motion of a solid body
- 9.4 Dynamics
 - 9.4.1 Fundamental laws of dynamics: Newton's law of motion
 - 9.4.2 Work, Energy and Power
 - 9.4.3 Mechanical Energy
 - 9.4.4 Relation between RPM, Torque and Power
 - 9.4.5 Law of conservation of energy

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र निर्माण उपकरण संभार उपसमूह, राजपत्र अनंकित प्रथम श्रेणी पद पदको
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Model Questions

1. The constant pressure cycle is called
 - a) Otto cycle
 - b) Diesel cycle
 - c) Mixed cycle
 - d) Above mentioned all
2. The first law of thermodynamics is
 - a) $dQ = du - dw$
 - b) $dQ = du + dw$
 - c) $du = dQ - dw$
 - d) $dw = dQ + du$
3. The purpose of estimating is
 - a) to design
 - b) to find out the amount
 - c) to constant
 - d) to demonstrate