

# NEPAL TELECOM

Nepal Doorsanchar Company Ltd.

## Syllabus

Syllabus for Free Competition written examination for Assistant Engineer (Telecom)  
(Level 6)

Full Marks: 100

Pass Marks: 40

Time: 2 hours

### Part II (Subject for Mechanical Group)

Types of Questions	No. of Questions	Marks	Total	Remarks
Objective	30	1	30	1/4 marks will be deducted for each incorrect answer
Short-Answer Questions	10	4	40	
Long-Answer Questions	3	10	30	

Use of non-programmable calculator is permitted in the examination hall.

- 1. Basic Thermodynamic (Weightage:15-25%)**  
Properties of gases and general Gas law (Boyles law, Charles law), Heat, Latent heat, Temperature scales, Temperature, Pressure, Work, Energy, Change in Energy, Thermodynamic system, State and Process, Thermodynamic equilibrium, Cyclic Process, Reversible Process, Irreversible Process, Atmospheric Air and Humidity, Basic Thermodynamic process (heat engines, refrigeration and air conditioning), Law of Conservation of Energy, First, Second, Zeroth and Third Law of Thermodynamics, Equality of Temperature, Carnot Cycle, Otto Cycle, Diesel Cycle.
- 2. Workshop Technology (Weightage:5-15%)**  
Bench Tools and Basic Operations, Power Tools, Machine Tools, Properties of Materials, Sheet Metal Works, Metal Joining.
- 3. Electric Machine (Weightage:10-20%)**  
Transformer, Principle of Electromechanical Energy Conversion, Motors, Generators, Engine force analysis, forces on gear teeth, forces analysis of cam and followers.
- 4. Air-conditioning System (Weightage:15-25%)**  
Refrigeration and its applications, refrigerant, Fundamental of Refrigeration, Air-conditioning and heat pump, Difference between refrigeration, Air-conditioning and heat pump, Refrigeration Systems (Carnot Cycles, Vapor compression cycle etc.), Air compressors, Different types of Air-conditioning System ( Package type Air conditioning Split and window type Air-conditioning), Components of Air-conditioning systems, Load Design of Air-conditioning Systems, Air-conditioning Control System, Properties of the air, Psychrometry and Psychrometric Chart, Maintenance of Air conditioning system.
- 5. Internal Combustion Engine (Weightage:15-25%)**  
Classification of IC Engine, Spark Ignition Engine, Diesel Engine, Two Stroke and Four Stroke Engine, IC Engine's components and parts identification and their functions, Various System of IC engines, Fuel System (Fuel injection system and carburetor

system), Cooling system (air cooled and water cooled system), Anti freeze lubrication system, filters, Governor, Maintenance of IC engine

- 6 Engineering Drawing (Weightage:3-7%)**  
General Concept of isometric view, Plan, Elevation, Electrical and mechanical drawing.
- 7. Measurement (Weightage:3-7%)**  
Voltmeter, Ammeter, Ohmmeter and RPM meter, Megger.
- 8. Strength of Material (Weightage:3-7%)**  
Basic Stress and Strain, Basic Torsion, Bending.