



# NTPC Diploma Trainee Syllabus 2023 | Exam Pattern PDF Download

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## NTPC DIPLOMA TRAINEE NEW SYLLABUS



**Quantitative**  
30

**English**  
30

**Reasoning**  
30



- CBT**  
Exam Mode
- UG**  
Exam Level
- 120**  
Total Marks
- 120**  
Total TIME (Min)

## Free > MOCK TEST & PYQ

The NTPC Diploma Trainee Syllabus for the 2023 Written Exam includes General English, Reasoning Aptitude, and Quantitative Aptitude. NTPC Diploma Trainee Syllabus 2023 exam will be conducted online (CBT) in both Hindi and English, with 120 questions carrying 120 marks. Candidates will have 120 minutes to complete the exam, with a marking scheme of +1 for correct answers and -0.25 for incorrect ones.

## WRITTEN TEST

01

### NTPC Diploma Trainee Syllabus 2023: Written Exam

#### Organization

NTPC

#### Exam Mode

Online (CBT)

**Exam Level**

---

Graduate

**Exam Type**

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Objective (MCQ)

**Paper Medium**

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Hindi & English (Except language subject)

**Total Question**

---

120

**Total Marks**

---

120

**Total Time (Minutes)**

---

120

**Correct Answer (Marks)**

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01

**Negative Marking**

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0.25

**Cut Off Marks**

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**General** 40%

**OBC** 30%

**SC** 30%

**ST** 30%

## Subject Details

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### Name Qsn Marks

General English 30

Reasoning aptitude 30

Quantitative aptitude 30

 [Test Paper 1](#)  [Test Paper 2](#)  [Test Paper 3](#)

### 1. General English

**Total Qsn 30 Test Paper- [Start Quiz](#)**

#### General English:

1. Cloze Test
2. Sentence Structure
3. Spot the Error
4. Vocabulary
5. One-Word Substitutions
6. Comprehension Passage
7. Idioms and Phrases
8. Spellings
9. Sentence Improvement
10. Commonly Misspelled Words
11. Jumbled Words
12. Synonyms, Homonyms, and Antonyms

### 2. Reasoning aptitude

**Total Qsn 30 Test Paper- [Start Quiz](#)**

#### Reasoning:

1. Odd Man Out
2. Blood Relations
3. Direction Sense Test
4. Ranking and Time
5. Figure Series
6. Analogy
7. Coding and Decoding
8. Number Series
9. Alphanumeric Series
10. Word Formation

### 3. Quantitative aptitude

## Total Qsn 30 Test Paper- Start Quiz

### Quantitative Aptitude:

1. Number System
2. HCF, LCM, Fractions
3. Simplification
4. Algebra
5. Profit, Loss, and Discount
6. Time and Distance
7. Time and Work
8. Averages
9. Ratio and Proportion
10. Percentages
11. Simple Interest and Compound Interest

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### Total Question

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120

### Total Marks

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120

**Total Time (Minutes)**

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120

**Correct Answer (Marks)**

---

01

**Negative Marking**

---

0.25

**Cut Off Marks**

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**OBC** 30%

**SC** 30%

**ST** 30%

**Subject Details**

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**Name Qsn Marks**

Electrical Engineering

Mechanical Engineering

Control and Instrumentation

**1. 📖 Electrical Engineering****Electrical Engineering:****1. Electrical Basics**

- Fundamentals
- Magnetic circuit
- A.C. Theory
- Generation of Elect. Power
- Conversion of Electrical Energy
- Wiring and Power Billing
- Measuring Instruments
- Introduction to renewable power generation

## 2. Electrical Engineering Material

- Conducting materials
- Semiconducting materials
- Insulating materials
- Dielectric materials
- Magnetic materials
- Material for special purposes

## 3. DC/AC Machine & Transformer

- Dc Generators
- Dc motors
- Single-phase transformer
- Auto transformer
- Three-phase transformer
- Induction motor
- Alternator
- Synchronous Motor
- Single Phase induction motor
- AC commutator motors
- Special Electric Machine
- Three-phase transformers

## 4. Analog Circuits/ Electronics

- P-n junction diode
- Special semiconductor devices
- Rectifier circuits & filters
- Transistors
- Transistor circuits
- Transistor amplifiers & oscillators
- Field effect transistor
- Operational amplifiers

## 5. Electrical Measurements & Measuring Instruments

- Measuring instruments
- Analog ammeters and voltmeters
- Wattmeter and measurement of power
- Energy meters and measurement of energy
- Measurement of speed, frequency and power factor
- Instrument transformer
- Measurement of resistance
- Measurement of inductance and capacitance
- Digital instruments

## 6. Control System

- Signal flow graph
- Time response of the system
- Analysis of stability
- Frequency response of the system
- Nyquist plot

## 7. Digital Electronics

- Number Systems and Codes
- Logic Gates
- Boolean Algebra
- Combinational Circuits
- Sequential Circuits
- Logic Families
- Counters
- Registers
- Digital to analog converters
- Analog to Digital Converters
- Display Devices

## 8. Generation, Transmission & Distribution of Electrical Power

- Generation of electricity
- Transmission of electric power
- Overhead line
- Performance of short & medium lines
- EHV transmission
- Distribution System
- Underground cable
- Economic Aspects
- Types of tariff
- Substation

## 9. Circuit and Network Theory

- Circuit elements and laws
- Magnetic circuits
- Network analysis
- Network theorems
- AC circuit and resonance
- Coupled circuits
- Transients
- Two-port network
- Filters

## 10. Microprocessor

- Introduction to microprocessor & Microcontroller
- 8085A microprocessor Architecture
- Instruction set of Intel 8085A
- 8085A programming
- Memory and I/O Interfacing
- Peripheral Interface
- Interfacing DAC & ADC
- Application of 8085A

## 11. Power Electronics & Drives

- Thyristor
- Firing Circuits For Thyristor
- Phase Controlled Rectifier
- Inverter
- Chopper
- Cycle Converter
- Power Semiconductor Devices
- Thyristor Applications
- A.C & D.C Drives

## 2. 📖 Mechanical Engineering

### Mechanical Engineering:

#### 1. Mechanics

- Fundamentals of Engineering Mechanics
- Equilibrium
- Friction
- Centroid & Moment of Inertia
- Simple Machines
- Dynamics

#### 2. Theory of Machines

- Simple mechanism
- Friction
- Power Transmission
- Governors and Flywheel
- Balancing of Machine
- Vibration of machine parts



### 3. Strength of Materials

- Simple stress & strain
- Thin cylinder and spherical shell under internal pressure
- Two-dimensional stress systems
- Bending moment & shear force
- Theory of simple bending
- Combined direct & Bending stresses
- Torsion Mechanical

### 4. Measuring Instruments

- Introduction to measurement
- Linear measurement
- Angular measurement
- Limits fits and tolerances
- Transducers
- Strain measurement
- Measurement of Pressure
- Temperature measurement

### 5. Pneumatics & Hydraulics

- Properties of Fluid
- Fluid Pressure and its measurements
- Hydrostatics
- Fluid Flow
- Flow through pipe
- Impact of jets
- Hydraulic turbines
- Hydraulic Pumps

### 6. Production Design

### 7. Engineering Drawing & Design/Design Calculation

### 8. Manufacturing Processes (Drilling, Milling, Boring)/ Manufacturing Technology

- Tool Materials
- Cutting Tools
- Lathe Machine
- Shaper
- Planning Machine
- Milling Machine
- Slotter
- Grinding
- Internal Machining operations
- Surface finish, lapping

### 9. Manufacturing Processes/ Heat & Surface Treatment, Heat & Mass Transfer

10. Metrology and Measurements/Tolerance Limits, Fits

11. Thermal Engineering/ Power Plant Engineering

- Concepts and terminology
- Energy and Work Transfer
- First Law of thermodynamics
- Second Law of Thermodynamics
- Working substances
- Ideal gases and real gases
- Vapor Power Cycles
- Gas Power cycles
- Fuels and Combustion
- Heat Transfer
- Refrigeration cycles
- Power Plant Engineering/Introduction
- Steam Power Plant
- Nuclear Power Plant
- Diesel engine power plant
- Hydel Power Plan

### 3. Control and Instrumentation

#### Mine Surveying:

1. Mining Legislation:

- The Mines Act
- Mines Rules
- Coal Mines Regulations 2017 (applicable to Opencast Coal mines) covering survey components

2. Controlled surveys:

- Triangulation
- Trilateration
- Application of GPS and Total Station in mine surveying

3. Tachometry:

Topography and Tachometry related survey

4. Instruments:

- Total Station
- GPS
- DGPS
- Auto Level

## 5. Surveying by Instruments:

- Errors and adjustments
- Close traverse
- Bench mark establishment and shifting

## 6. Electronic Distance Measurement (EDM):

- Principle of measurement
- Types of instruments
- Correction and selection of instrument

## 7. Field Astronomy:

- Astronomical terms
- Determination of true bearing by equal altitude method
- Gyro theodolite
- Principle and determination of Gyro north
- Astronomical triangle
- Conversion of time systems
- Precise determination of azimuth by astronomical methods

## 8. National grid and Coordinate systems:

- Map projections (Cassini Lambert's polyconic and universal transfers Mercator)
- Transformation of coordinates
- Vertical projections
- Mine models

## 9. Geodesy:

- Geod, spheroid, and ellipsoid
- Geocentric, geodetic, and astronomical coordinates
- Orthometric and dynamic heights

## 10. Photogrammetry:

- Introduction
- Scale of a vertical photograph
- Photographs versus maps
- Application of photogrammetry and remote sensing in mining

## 11. Theory of errors and adjustment:

- Causes and classification of errors
- Inclines of precision
- Laws of weight propagation and adjustment of errors
- Adjustment of triangulation figures

## 12. Surveying of different mine workings:

- Control of direction and gradient in drift and roadways
- Traversing along steep workings with or without auxiliary telescope

13. Area and volume calculations:

- OB (Overburden) volume calculation by various methods
- Coal stock measurement
- CVC/Other government guidelines regarding Coal Stock/OB measurement
- MDO Contract provisions on volumetric measurement of OB/Coal
- Third-party provisions for OB/Coal measurement and periodical reconciliation
- Plan contouring and cross-section preparation
- Earthwork and building estimation
- Laying out of rail and haul road curves
- Gradient of haul roads/ramps
- Measurement of depth of incline roadways and shafts
- Determination of azimuth, latitude, and longitude

14. Monsoon Preparation Plan:

- Sump, Drainage, Pump capacity
- Rainwater management plan
- Preparation of Emergency Response Plan

15. Borehole surveying, Coal Sampling, and analysis:

- Survey of Borehole locations
- Coal seam/parting identification
- Marking of fault and outcrop
- Third-party sampling and analysis methodology regarding Coal quality
- Physio-mechanical-chemical properties of Coal and Non-Coal strata
- Different grades of Coal

16. Types of plans for opencast workings:

- Preparation, care, storage, and preservation
- Legislation concerning mine plans and sections
- Duties and responsibilities of surveyors
- Geological map reading

17. Application of computer in mine surveying:

Preparation of mine plan using AutoCAD, LisCAD

**NOTE:** The expected syllabus for NTPC Diploma Trainee Recruitment★

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## NTPC Diploma Trainee Syllabus 2023 FAQ

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★ **What is the organization conducting the NTPC Diploma Trainee?**

The NTPC (National Thermal Power Corporation) is the organization conducting the NTPC Diploma Trainee Exam.

★ **What is the mode of the NTPC Diploma Trainee Exam?**

The NTPC Diploma Trainee Exam is conducted online (CBT), which stands for Computer-Based Test.

★ **What is the level of the NTPC Diploma Trainee Exam Pattern ?**

The NTPC Diploma Trainee Exam is conducted at the graduate level.

★ **What type of questions can be expected in the NTPC Diploma Trainee Syllabus?**

The NTPC Diploma Trainee Exam consists of objective-type questions, also known as Multiple Choice Questions (MCQs).

★ **What is the marking scheme for the NTPC Diploma Trainee PDF Download?**

In the NTPC Diploma Trainee Exam, each correct answer is awarded 01 mark, while there is a negative marking of 0.25 marks for each incorrect answer.

### Comment

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