TNUSRB – SI (TECHNICAL)
SYLLABUS FOR WRITTEN EXAMINATION

The Written Examination for Sub-Inspectors of Police selection will be of degree level with basic knowledge of Class XII of all the subjects as the datum. The syllabus includes the following topics.

Part- I

GENERAL KNOWLEDGE - BOTH FOR OPEN AND DEPARTMENTAL CANDIDATES

1. **GENERAL SCIENCE:** It will cover general appreciation and understanding of science including matters of everyday observations and experience as may be expected of a well-educated person who has not made any special study of any scientific discipline. The questions shall be from topics- in Physics, Chemistry and Biology viz. Scientific Instruments, Inventions and Discoveries. Scientists and their contributions, Human Physiology, Diseases and their cause, cure and prevention, Diet and Balanced diet, Human Genetics, Animals, Mammals and Birds, Environment and Ecology, Elements and Compounds. Acids, Bases and Salts and allied subjects, Motion, Newton's Laws of motion – Properties of Matter, Electricity, National Laboratories and other related topics. All these topics will be of basic nature.

2. **HISTORY OF INDIA**: Dates and events of Indian History from Indus Valley Civilisation to the present day Indian modern administration.

3. **GEOGRAPHY**: Regions of India, Weather, Monsoon and Climate, Rainfall, Natural Calamities, Crops, Crops pattern, Indian Towns and Places, Hill Stations, National Parks, Major Ports, Minerals, Location of Major Industries, Forests and Wildlife, Population distribution in India and other related topics.

4. **ECONOMICS AND COMMERCE**: Agriculture, Major crops and crop pattern in India, Industrial Development, Major, Medium, Small Scale and Cottage Industries of Tamil Nadu Village and Rural Development in India. Housing, Drinking water and other development schemes – price policy, inflation, population and unemployment problems, imports and exports Industrial development and five year planning.

5. **INDIAN POLITY**: Indian Constitution, Salient Features, Citizenship, Elections, Parliament and State legislature, Executive, States, Judiciary system, Local Self- Governments, Centre-State Relations, Language Policy and Foreign Policy.

6. **CURRENT EVENTS**: Latest development in Science and technology, political developments in India, new developments in Trade, Transport and communication, historical events. Fine Arts like dance, drama, films, painting, major literary works, Games and Sports, National, International awards, National and International organizations, Abbreviations, Who is Who, Books and Authors, General Technology, India and its Neighbours, present day India and other related topics. Arts, Literature, Culture of India and Tamil Nadu.

TECHNICAL – BOTH FOR OPEN AND DEPARTMENTAL CANDIDATES

UNIT -1
ELECTRONIC DEVICES AND CIRCUITS

Semiconductor, intrinsic and extrinsic N type & p type, PN junction diode, zener diode, Rectifier, Bipolar Junction, Transistor, oscillators, Field effect Transistor, Unijunction Transistor, SCR, DIAC, TRIAC & MOSFET, Opto Electronic Devices and wave shaping circuits, BJT Amplifer, FET Amplifier, Feedback amplifier, Oscillator, IGBT, MOSFET, Converter and choppers., Inverters, PLC, DCS.

UNIT -II
ELECTRICAL CIRCUITS AND MACHINES

D.C. Circuits, current power, resistance, conductance, resistivity, ohm's law, kirchoff's law, A.C. Circuits, Resonance, Transformers and Power supplies, Test Instruments, D.C. Machines, types of Generator, induction motor, stepper motor, Universal Motor. Measuring instruments, Bridges, CRO, Digital storage Oscilloscope, Function generator, Transducers, Sensors, digital voltmeter, digital Multimeter, Power devices and Trigger circuits, Inverters and Applications.

UNIT -III
MICRO ELECTRONICS

Number System, Boolean Algebra and logic gates, Digital logic families, combinational circuits, sequential circuits, operational amplifier and its application, Phase locked loop, Digital to Analog converter, Analog to digital converter, IC Timer.

MICROPROCESSOR AND ITS APPLICATION

Introduction to Microprocessors and Microcontroller, Architecture & Instruction set of 8085 microprocessor and 8051 microcontroller, I/O and timer, Programming of 8085 microprocessor and 8051 microcontroller, Interrupt and Serial Communication for Data Transfer, Interfacing Techniques and its application.

UNIT - IV

NETWORK, ANTENNA AND PROPAGATION

Networks, Equalizer, Attenuator, Filters, Antennas: Fundamentals of Radiation, Antenna parameters, Oscillating dipole, half wave dipole, folded dipole, Yagi array, Aperture and Slot Antennas, Spiral antenna, Helical Antenna, Log periodic Antenna arrays, Antenna Measurements - Propagation of Radio Waves.

UNIT - V

COMMUNICATION ENGINEERING AND SYSTEM

Communication theory: Amplitude Modulation, Angle Modulation, Pulse Modulation Techniques. Digital Communication techniques: Information Theory, Digital Modulation Technique, Channel Codes, Spread Spectrum Techniques, Optical communication, wireless Communication: Wireless Communication Technologies (2G, 3G, 4G), Cellular Concepts, Multiple Access Techniques, Radar and Navigational Aids.

UNIT VI

PROGRAMMING AND APPLICATION OF COMPUTERS

Introduction to Computers, Hardware and Software installation and maintenance, Firmware Upgrading, Trouble Shooting of Desktop and Laptops, Accessing Scanners, Printers, facsimile communication system, Audio & Video Systems, Working with Word Processing, Spreadsheet, Database, Power Point and Internet software, recent trends in Social media and cyber security computer network devices and OSI layers, TCP/IP and 802.X Protocols, Cryptography and Network Security, Encryption and Decryption Algorithms, Authentication and Integrity Algorithms.

PROGRAMMING IN "C"

Program, Development and Introduction to C,C Operators, I/O Statements and Decision Making,
Simple "C" Programming.

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