

राष्ट्रीय प्रौद्योगिकी संस्थान, उत्तराखण्ड
NATIONAL INSTITUTE OF TECHNOLOGY, UTTARAKHAND

Selection Process for Recruitment of Deputy Registrar

Selection Process for the post of **Deputy Registrar** will consist of two stages as detailed below:

Stage-I : Multiple Choice Based Screening Test [Qualifying in nature]

Stage-II : Presentation and Personal Interview.

Stage-I : Multiple Choice Based Screening Test [Qualifying in nature]

- ❖ Screening Test will be of 60 Minutes duration comprising of 60 Questions. Test will be of qualifying in nature and the qualifying mark for the test is 50%.
- ❖ Each correct answer will be awarded one (1) mark and for each wrong answer 0.25 marks will be deducted.

Syllabus and Scheme of Examination

Sl. No.	Topic	Contents
1.	Broad Administrative structure of NIT system.	(a) Working knowledge of Act & Statutes of the Institute. (Please refer NIT Uttarakhand) (b) Roles & Responsibilities of Chairman, BoG, Director, Deputy Director, Registrar, Deans etc.
2.	Academic Administration (Please refer NIT Uttarakhand, Website)	(a) Broad idea about Admission, Registration, Credit System and Academic Programmes offered by the Institute. (b) Examination System. (c) Ordinances for UG and PG studies (d) Conduct and Discipline Rules of Students, Rules for unfair means in examination, Scholarship, Medal and Prizes for the students. (e) NEP-2020
3.	Leave/ Vacation:	(a) CCS (Leave) Rules (b) Type of leave and terms & conditions of its grant. (c) Accumulation of leave. (d) Procedure for grant of leave.
4.	Disciplinary Procedures	(a) CCS (Conduct) Rules. (b) CCS (CCA) Rules (c) Procedure for disciplinary actions. (d) Essential steps for handling disciplinary cases. (e) CVC Guidelines
5.	Pension Rules & Retirement Benefits, Gratuity Act, GPF, CPF, EPF, NPS.	
6.	Purchasing	(a) Purchasing principles. (b) Various Purchasing Systems. (c) Purchases Budget. (d) Legal aspects of Purchasing. (e) Procurement of Goods and GFR2017 (f) Procurements of Services (g) Procurement of Works (h) Payment procedure (i) CVC Guidelines
7.	Stores Management	(a) Inventory Control-ABC Analysis, FSN System, VED System. (b) Bill of materials. (c) Stores Accounting. (i) Stock-taking/ Stock verification (ii) Valuation of stock in hand.

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8.	Fundamental Rules and Supplementary Rules, TA/DA Rules, LTC Rules, Medical Rules, CCS (Revised Pay Rules 2016), CCS (Pensions Rules), Rules regarding allowances to Central Govt employees, Rules of Deputation & Lien, Reservation in appointment, Recruitment Rules in NITs for faculty and non-faculty members.	
9.	Preparation of Budget and its Allocation. Financial Accounting: Introduction, Accounting Concepts, Preparation and Presentation of Financial Statements	
10.	Deputy Registrar & its duties, responsibilities and functions:	(a) Interpersonal Roles. (b) Managing Work Motivation. (c) Managing Conflicts. (d) Interpersonal Communication. (e) Organizational Communication.
11.	RTI Act, Audit of Autonomous Bodies by C&AG. Higher & Technical Education of India, Various Policies of the MoE etc.	

Number of candidates for subsequent stages of selection process will be restricted to six [06] times the number of posts in each category, subject to availability of candidates applied and securing marks more than the minimum qualifying marks.

Stage II: Presentation and Personal Interview

Candidates for **Deputy Registrar post** may have to do a presentation (10-12 Mins) on the topics given below:

- 1) Any two topics out of: a) Interpersonal Roles, b) Managing Work Allocation including mapping competencies with roles and activities, c) Conflicts management, d) Interpersonal Communication, Organizational Communication
- 2) Role of Deputy Registrar in any one of the following topics based on their interest and experience:
a) Academic Administration, b) Finance management, c) Legal and contract management, d) Procurement and management based on budget allocation,

This will be followed by a personal interview.

Final Selection

- ❖ Final selection list shall be prepared based on Merit from personal interview

Note: Any guidelines/instructions received from Ministry of Education till the date of completion of Selection Process shall be applicable.

Selection Process for Recruitment of Executive Engineer(Civil)

Selection Process for the post of **Executive Engineer (Civil)** will consist of two stages as detailed below:

Stage-I : Multiple Choice Based Screening Test [Qualifying in nature]

Stage-II : Presentation and Personal Interview

Syllabus and Scheme of Examination

Stage-I : Multiple Choice Based Screening Test [Qualifying in nature]

- ❖ Screening Test will be of 60 Minutes duration comprising of 60 Questions [**Section A: 15 Questions; Section B: 15 Questions and Section C: 30 Questions**]. Test will be of qualifying in nature and the qualifying mark for the test is 50%.
- ❖ Each correct answer will be awarded one (1) mark and for each wrong answer 0.25 marks will be deducted.
- ❖ **Syllabus:**

Section A [15 Questions]

- General English and General Hindi
- Quantitative Aptitude
- Verbal and Non Verbal Reasoning
- General Studies & Current Affairs

Section B [15 Questions]

- General Science (such as Physics, Chemistry, Biology, Mathematics and Environment) & Basic Questions on different trades of Engineering & Technology.
- Application of Computer Software like MS-Word, Excel, Power Point, Tally etc. used in day-to-day office work.
- Internet, e-mail and various online tools used in day-to-day office work.
- CPWD Work Manuals, Preparation of Estimates for works and Project Report for Civil Works, Project Management, Central Government Rules and GFR2017 etc.

Section C [30 Questions]

- Building Materials, Surveying, Design of RCC, Soil Mechanics, Hydraulics, Environmental Engineering.

Number of candidates for subsequent stages of selection process will be restricted to six [06] times the number of posts in each category, subject to availability of candidates applied and securing marks more than the minimum qualifying marks.

Stage II: Presentation and Personal Interview

Candidates for the post of **Executive Engineer (Civil)** may have to do a presentation (10-12 Mins) on his plans for the development of the Institute campus. This will be followed by an interview.

Final Selection

- ❖ Final selection list shall be prepared based on Merit from personal interview.

Note: Any guidelines/instructions received from Ministry of Education till the date of completion of Selection Process shall be applicable.

Selection Process for the Recruitment of Assistant Librarian

The selection process for the post of **Assistant Librarian** will consist of two stages as described below:

Stage-I: Multiple Choice Based Screening Test [Qualifying in nature]

Stage-II: Personal interview and presentation

Syllabus and Scheme of Examination

Stage-I Multiple Choice Based Screening Test [Qualifying in nature]

- ❖ Screening Test will be of 60 Minutes duration comprising of 60 Questions [**Section A: 20 Questions and Section B: 40 Questions**]. Test will be of qualifying in nature and the qualifying mark for the test is 50%.
- ❖ Each correct answer will be awarded one (1) mark and for each wrong answer 0.25 marks will be deducted.

Section A [20 Questions]

- General English and General Hindi
- Quantitative Aptitude
- Verbal and Non-Verbal Reasoning
- General Studies & Current Affairs

Section B [40 Questions]

- Purchasing Principles, GFR-2017, Library Management, Library Classification - theory and practice, Library Cataloguing - theory and practice, Reference and Information Sources, Information Science and information as a resource/commodity, technology transfer, communication theories and models, delivery of books (public libraries) and newspaper act 1954 and 1956, Intellectual Property rights, Copyright etc.

Number of candidates for subsequent stages of selection process will be restricted to six [06] times the number of posts in each category, subject to availability of candidates applied and securing marks more than the minimum qualifying marks.

Stage-II: Presentation and Personal interview

Candidates for the post of **Assistant Librarian** may have to do a presentation (10-12 Mins) on his plans for the development of the Institute library in the next five years. This will be followed by a personal interview.

Final Selection

- ❖ Final selection list shall be prepared based on Merit from personal interview

Note: Any guidelines/instructions received from Ministry of Education till the date of completion of Selection Process shall be applicable.

Selection Process for the Recruitment of Medical Officer

The selection process for the post of **Medical Officer** will consist of two stages as described below:

Stage-I: Multiple Choice Based Screening Test [Qualifying in nature]

Stage-II: Personal interview and presentation

Stage-I Multiple Choice Based Screening Test [Qualifying in nature]

- ❖ Screening Test will be of 60 Minutes duration comprising of 60 Questions. Test will be of qualifying in nature and the qualifying mark for the test is 50%
- ❖ Each correct answer will be awarded one (1) mark and for each wrong answer 0.25 marks will be deducted.

❖ **Syllabus**

The topic may include pathology, surgery, general medicines, pediatrics, anatomy, pathology, O & G medicine, physiology, ophthalmology, biochemistry, microbiology, pharmacology, orthopedics, preventive & community medicine, surgery and others.

Number of candidates for subsequent stages of selection process will be restricted to six [06] times the number of posts in each category, subject to availability of candidates applied and securing marks more than the minimum qualifying marks.

Stage-II: Presentation and Personal interview

Candidates for the post of **Medical Officer** may have to do a presentation (10-12 Mins) on his plans for the development of the medical facilities for the students and employees of the Institute in the next five years. This will be followed by a personal interview.

Final Selection

Final selection list shall be prepared based on merit from personal interview.

Note: Any guidelines/instructions received from Ministry of Education till the date of completion of Selection Process shall be applicable.

Selection Process for Recruitment of Superintendent

Selection Process for the post of **Superintendent** will consist of two stages as detailed below:

Stage-I : Multiple Choice Based Written Test

Stage-II : Skill Test [Qualifying in nature. Only for those who are successful after the Stage-I].

Syllabus and Scheme of Examination

Stage-I [Multiple Choice Based Written Test]

- ❖ Written test will be of 60 Minutes duration comprising of 60 Questions [**Section A: 20 Questions; Section B: 40 Questions**].
- ❖ Each correct answer will be awarded one (1) mark and for each wrong answer 0.25 marks will be deducted.
- ❖ **Syllabus**

Section A [20 Questions]

- General English and General Hindi
- Quantitative Aptitude
- Verbal and Non Verbal Reasoning
- General Studies & Current Affairs

Section B [40 Questions]

- Application of Computer Software like MS- Word, Excel, Power Point, Tally etc. used in day-to-day office work.
- Internet, e-mail and various online tools used in day-to-day office work.
- Central Government Rules and GFR2017.
- RTI Act and NEP-2020
- Office Procedures
- NIT Act and Statutes

❖ **Qualifying Marks and Maximum number of candidates for next Stage:**

- Minimum Qualifying Marks: [UR:50%; EWS:45%].
- Further, number of candidates for subsequent stages of selection process will be restricted to six [06] times the number of posts in each category, subject to availability of candidates applied and securing marks more than the minimum qualifying marks.

Stage-II [Skill Test]

- ❖ Skill test will be for a duration of 01 Hr.
- ❖ Only those who are qualified in the written test [Stage-I], will be allowed to appear in the Skill Test.

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- ❖ Candidate's skills and abilities will be checked and categorized as 'qualified or not-qualified'. The qualifying mark for the skill test is 50%.
- ❖ **Syllabus:**
 - Test on Noting and Drafting. The matter will have to be transcribed on computer.
 - Computer Proficiency Test for test of working knowledge of MS-Word, Excel, Power Point, Access & other office tools.
 - Knowledge of procurement, Financial rules, comparative statements, bids, accounting process, balance sheet etc.

Final Selection

- ❖ Merit list shall be based on written test [Stage – I] to be drawn only for the candidates qualified in skill test.

Note: Any guidelines/instructions received from Ministry of Education till the date of completion of Selection Process shall be applicable.

Selection Process for Recruitment of SAS Assistant

The selection process for the post of **SAS Assistant** will consist of two stages as described below:

Stage-I: Multiple Choice Based Written Test

Stage-II: Skill Test [Qualifying in nature. Only for those who are successful after the Stage-I].

Syllabus and Scheme of Examination

Stage-I [Multiple Choice Based Written Test]

❖ Written Test will be of 60 Minutes duration comprising of 60 Questions [**Section A: 20 Questions; Section B: 40 Questions**].

❖ Each correct answer will be awarded one (1) mark and for each wrong answer 0.25 marks will be deducted.

❖ **Syllabus:**

Section A [20 Questions]

- General English and General Hindi
- Quantitative Aptitude
- Verbal and Non Verbal Reasoning
- General Studies & Current Affairs

Section B [40 Questions]

- Application of Computer Software like MS-Word, Excel, Power Point, Tally etc. used in day-to-day office work.
- Internet, e-mail and various online tools used in day-to-day office work.
- Sociological and Psychological basis of Physical Education
- Physical Composition of Human Body
- Sports Medicine
- Yoga
- Rules of Games & Sports
- Major Sports Events and Awards
- Current Sports News and Event Management

❖ **Qualifying Marks and Maximum number of candidates for next Stage:**

- Minimum Qualifying Marks: [UR:50%, OBC: 45%, EWS:45%, SC: 33%, ST:33% and PwD:25%]
- Further, the number of candidates shortlisted for the subsequent stages of selection process

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will be restricted to six [06] times the number of posts in each category, subject to availability of candidates applied and securing marks more than the minimum qualifying marks.

Stage-II [Skill Test]

- ❖ Skill Test will be for a duration of 01 Hr.
- ❖ Only those who are qualified in the Written Test [Stage-I], will be allowed to appear in the Skill Test.
- ❖ Candidate's skills and abilities will be checked and categorized as 'qualified or not-qualified'. The qualifying mark for the skill test is 50%.
- ❖ **Syllabus:**
 - Test the practical knowledge on Sports, Drama, Music, Films, Painting, Photography equipment.
 - Drafting of Media Report, Press Release and Speech.

Final Selection

- ❖ Merit list shall be based on written test [Stage – I] to be drawn only for the candidates qualified in skill test.

Note: Any guidelines/instructions received from Ministry of Education till the date of completion of Selection Process shall be applicable.

Selection Process for Recruitment of Junior Engineer

Selection Process for the post of **Junior Engineer** will consist of two stages as detailed below:

Stage-I : Multiple Choice Based Written Test

Stage-II : Skill Test [Qualifying in nature. Only for those who are successful after the Stage-I].

Syllabus and Scheme of Examination

Stage-I [Multiple Choice Based Written Test]

❖ Written Test will be of 60 Minutes duration comprising of 60 Questions [**Section A: 15 Questions; Section B: 15 Questions and Section C: 30 Questions**].

❖ Each correct answer will be awarded one (1) mark and for each wrong answer 0.25 marks will be deducted.

❖ **Syllabus:**

Section A [15 Questions]

- General English and General Hindi
- Quantitative Aptitude
- Verbal and Non Verbal Reasoning
- General Studies & Current Affairs

Section B [15 Questions]

- General Science (such as Physics, Chemistry, Biology, Mathematics and Environment) & Basic Questions on different trades of Engineering & Technology.
- Application of Computer Software like MS-Word, Excel, Power Point, Tally etc. used in day-to-day office work.
- Internet, e-mail and various online tools used in day-to-day office work.
- CPWD Work Manuals, Preparation of Estimates for works and Project Report for Civil and Electrical Works, Project Management, Central Government Rules and GFR2017 etc.

Section C [30 Questions]

For Junior Engineer (Civil)

- Building Materials, Surveying, Design of RCC, Soil Mechanics, Hydraulics, Environmental Engineering.

For Junior Engineer (Electrical)

- Basic Electrical Engineering and Electrical Measurements, Circuit Law, Electrical Machines, Single Phase and Three Phase Transformers, Generation Transmission and Distribution of Electricity, Utilization of Electrical Energy.

❖ **Qualifying Marks and Maximum number of candidates for next Stage:**

- Minimum Qualifying Marks: [UR:50%, OBC: 45%, EWS:45%, SC: 33%, ST:33% and PwD:25%]
- Further, number of candidates for subsequent stages of selection process will be restricted to six [06] times the number of posts in each category, subject to availability of candidates applied and securing marks more than the minimum qualifying marks.

Stage-II [Skill Test]

- ❖ Skill Test will be for a duration of 01 Hr.
- ❖ Only those who are qualified in the Written Test [Stage-I], will be allowed to appear in the Skill Test.
- ❖ Candidate's skills and abilities will be checked and categorized as 'qualified or not-qualified'. The qualifying mark for the skill test is 50%.
- ❖ **Syllabus:**
 - Preparation of Estimates for works and Project Report for Civil and Electrical Works, Project Management, taking measurement, preparation of M.B., supervision of works and any other relevant area.

Final Selection

- ❖ Merit list shall be based on written test [Stage – I] to be drawn only for the candidates qualified in skill test.

Note: Any guidelines/instructions received from Ministry of Education till the date of completion of Selection Process shall be applicable.

Selection Process for Recruitment of Technical Assistant

Selection Process for the post of **Technical Assistant** will consist of two stages as detailed below:

Stage-I : Multiple Choice Based Written Test.

Stage-II : Skill Test [Qualifying in nature. Only for those who are successful after the Stage-I].

Syllabus and Scheme of Examination

Stage-I [Multiple Choice Based Written Test]

- ❖ Written Test will be of 60 Minutes duration comprising of 60 Questions [**Section A: 15 Questions; Section B: 15 Questions; Section C: 30 Questions**].
- ❖ Each correct answer will be awarded one (1) mark and for each wrong answer 0.25 marks will be deducted.

❖ **Syllabus**

Section A [15 Questions]

- General English and General Hindi
- Quantitative Aptitude
- Verbal and Non Verbal Reasoning
- General Studies & Current Affairs

Section B [15 Questions]

- General Science (such as Physics, Chemistry, Biology, Mathematics and Environment) & Application of Computer Software like MS-Word, Excel, Power Point, Tally etc. used in day-to-day office work.
- Internet, e-mail and various online tools used in day-to-day office work.

Section C [30 Questions]

- ❖ Basic Questions on Engineering

Introduction to Civil Engineering: Basic Areas in Civil Engineering, Role of Civil Engineer in the construction of buildings, dams, expressways, and infrastructure projects for 21st century. Importance of an interdisciplinary approach in engineering. Materials and Construction: Basic materials for construction – cement, bricks, stone, natural and artificial sand, Reinforcing Steel – Mild, Tor, and High Tensile Steel. Concrete Types - PCC, RCC (prestressed and pre-cast). Recycling of materials. Substructure – Definition and functions of foundations. Types of Construction – Load bearing, Framed, Composite, Fundamental requirements of masonry. Use of maps and field surveys: Principles of survey, Introduction to scale, types of maps and their uses. Ecology and Ecosystem: Concept of Environment – biotic and abiotic factors, Impact of the human behavior and the technological advancements on the environment. Need for conserving natural resources and

preserving the environment. Engineer's role in achieving sustainable development, Environment Impact Assessment (only concept). Introduction to solid waste management, electronic wastes and its disposal. Energy and Environmental Pollution: Types of energy – conventional and non-conventional. Need for harnessing alternative energies to meet the increased demand. Methods of harnessing energies. Sources, causes, effects and remedial measures associated with Air Pollution, Water pollution, Noise Pollution, Land Pollution.

Mechanics Introduction: System of forces, coplanar concurrent force system, equilibrium of rigid bodies, free body diagram, Lami's theorem, Varignon's theorem, Analysis of framed structure: Reaction in beam with different end conditions, determination of reactions in members of trusses. Centre of gravity and moment of inertia: Concept of C.G and centroid, position of centroid, theorem of parallel and perpendicular axes, moment of inertia of simple geometrical figures. Types of Friction, Introduction to stress and strain, Elastic constants. Basics of Thermal and Fluid Science: Introduction, thermodynamics properties, forms of energy, thermodynamic systems and control volume, steady flow systems, types of work, thermodynamic processes, Zeroth, first and second law of thermodynamics, Reversible and Irreversible processes, steady-state energy equation and its applications, Heat engine, Heat pump and refrigerator, COP.

Introduction to IC Engine: two-stroke engine, four stroke engine, Otto Cycle, Diesel Cycle and dual cycle. Introduction to fluid mechanics, Properties of fluids, surface tension, compressibility, pressure measurement.

Electrical circuit, circuit elements resistance, inductance & capacitance, Kirchhoff's laws, voltage source & current source, superposition theorem, Thevenin's theorem, norton's theorem, duality, star-delta transformation. DC Transients AC circuits, periodic function, average & r.m.s. values, steady state behavior with sinusoidal excitation, phase representation, reactance & impedance, power and power factor, series & parallel circuit, resonance and quality factor, principle of generation of single phase & three phase voltages, power in balanced three phase ac system. Power systems: elementary idea about bulk power generation, long distance transmission and distribution, industrial and residential distribution, safety & legal standards. Magnetic circuit, flux, mmf, reluctance, analogy with electric circuits. Simple calculations for composite magnetic circuits. Magnetic Coupling Coefficient Measurement of electrical current, voltage and energy in ac & dc systems. Transformer: introduction, basic principles, construction, phasor diagram for transformer under no load condition, transformer on load, balance of mmf on both sides, phasor diagram, equivalent circuit, open circuit & short circuit test. Electric Machines: 1. DC shunt and series motor – construction, principle of working and applications, need of starters, torque and speed control. 2.

Induction motors – construction, principle of working of single phase and 3-phase motors, torque-slip characteristics.

Basic Semiconductor Physics: temperature effect, intrinsic and extrinsic semiconductor, band diagram, mobility, conductivity hall effect, Diode, Depletion layer, V-I characteristics, ideal and practical, diode resistance, capacitance, Diode Equivalent Circuits, Transition and Diffusion Capacitance, Zener Diodes breakdown mechanism (Zener and avalanche). Diode Applications: Parallel and Series Diode Configuration, Half and Full Wave rectification, Clippers, Clampers, Zener diode as shunt regulator, Voltage-Multiplier Circuits. Light-Emitting Diodes, Varactor (Varicap) Diodes, Tunnel Diodes, Liquid-Crystal diodes and displays. Transistor Theory: Bipolar Junction Transistor, Transistor Construction, Operation, Amplification action. Common Base, Common Emitter, Common Collector Configuration. Amplifiers. Field Effect Transistor: Construction and I-V Characteristics of JFETs. Construction and I-V Characteristics of MOSFET, CS, CD, CG amplifier and analysis of CS amplifier MOSFET (Depletion and Enhancement) Type. Digital Electronics: Introduction to digital electronics, Number Systems, Conversion between various number systems, Basic Logic gates. Operational Amplifiers: Introduction, Differential Amplifier Circuits, Op-Amp Basic, Practical Op-Amp Circuits (Inverting Amplifier, Noninverting Amplifier, Unit Follower, Summing Amplifier, Integrator, Differentiator). Differential and Common-Mode Operation. Fundamentals of Communication Engineering: Elements of a Communication System, Need of modulation, electromagnetic spectrum and typical applications, terminologies in communication systems, Basics of signal representation and analysis, Fundamentals of amplitude and angle modulation, modulation and demodulation techniques.

Overview of a computer system, Block diagram and major parts of a computer, history of computer development, introduction to binary, octal, & hexadecimal numbers, ASCII code, different levels of programming languages – machine language, assembly language, high level language; need of operating system, tree structure of storage, introduction to assembler, compiler and interpreter. Introduction: Flow charts, data types and storage classes, scope of variables, arithmetic operators, assignment, conditional, arithmetic expressions, enumerated data types, decision making, branching, looping, Switch concept, function and parameter passing, recursive functions, macros. Basic programming algorithms: Programs to illustrate basic language constructs in C like - Factorial, Sine/cosine and other mathematical series, Fibonacci series, calculating squareroot of a number, calculating GCD of 2 integers (Euclid's method and otherwise), Calculating LCM of 2 integers and similar such programs. Arrays and applications: Introduction to one dimensional and 2-D array with examples. Representing a polynomial using 1-D array and

polynomial operations, Use of 2-D array to represent a matrix and matrix operations. Character arrays (strings): String related functions (strlen, strcpy, strcat, strcmp, reverse etc.) and their function definitions. Searching and Sorting methods: Selection sort, Bubble sort, Insertion sort, Linear and binary search, partitioning an array, merging of 2 sorted arrays. Structures and Unions: Basic concept, array of structures and its applications. Pointers: Introduction (declaration and initialization), pointers and arrays, concept of dynamic memory allocation, use of pointers to represent variable-sized 1-D and 2-D arrays, pointers to structures. File Management in C: Open, close, read and write operations, Sequential and text files.

➤ **Qualifying Marks and Maximum number of candidates for next Stage:**

- Minimum Qualifying Marks: [UR:50%, OBC: 45%, EWS:45%, SC: 33%, ST:33% and PwD:25%].
- Further, number of candidates for subsequent stages of selection process will be restricted to six [06] times the number of posts in each category, subject to availability of candidates applied and securing marks more than the minimum qualifying marks.

Stage-II [Skill Test]

- ❖ Skill Test will be for a duration of 01 Hr.
- ❖ Only those who are qualified in the Written Test [Stage-I], will be allowed to appear in the Skill Test.
- ❖ Candidate's skills and abilities will be checked and categorized as 'qualified or not-qualified'. The qualifying mark for the skill test is 50%.

❖ **Syllabus**

- Domain practical knowledge in the relevant area specific to the post related to the Department/ Section applied for from the Trade/ Branch relating to Instrumentation / Lab. Systems / Practical / Experimental / Analytical / Model / Prototype Development etc.

Final Selection

- ❖ Merit list shall be based on written test [Stage – I] to be drawn only for the candidates qualified in skill test.

Note: Any guidelines/instructions received from Ministry of Education till the date of completion of Selection Process shall be applicable.

Selection Process for Recruitment of Junior Assistant

Selection Process for the post of **Junior Assistant** will consist of two stages as detailed below:

Stage-I : Multiple Choice Based Written Test.

Stage-II : Skill Test [Qualifying in nature. Only for those who are successful after the Stage-I].

Syllabus and Scheme of Examination

Stage-I [Multiple Choice Based Written Test]

- ❖ Written Test will be of 60 Minutes duration comprising of 60 Questions. [**Section A: 20 Questions; Section B: 40 Questions**].
- ❖ Each correct answer will be awarded one (1) mark and for each wrong answer 0.25 marks will be deducted.
- ❖ **Syllabus**

Section A [20 Questions]

- General English and General Hindi
- Quantitative Aptitude
- Verbal and Non Verbal Reasoning
- General Studies & Current Affairs

Section B [40 Questions]

- Application of Computer Software like MS-Word, Excel, Power Point, Tally etc. used in day-to-day office work.
- Internet, e-mail and various online tools used in day-to-day office work.
- Central Government Rules and GFR2017.
- RTI Act and NEP-2020
- Office Procedures
- NIT Act and Statutes

❖ **Qualifying Marks and Maximum number of candidates for next Stage:**

- Minimum Qualifying Marks: [UR:50%; OBC:45%; SC:33%].
- Further, number of candidates for subsequent stages of selection process will be restricted to six [06] times the number of posts in each category, subject to availability of candidates applied and securing marks more than the minimum qualifying marks.

Stage-II [Skill Test]

- ❖ Skill Test will be for a duration of 01 Hr.
- ❖ Only those who are qualified in the written test [Stage-I], will be allowed to appear in the skill test.

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- ❖ Candidate's skills and abilities will be checked and categorized as 'qualified or Non-qualified'. The qualifying mark for the skill test is 50%.
- ❖ **Syllabus**
 - Typing Test on Computer to access the minimum Typing Speed of 35 w.p.m. in English and of 30 w.p.m in Hindi [UR:5% Maximum permissible error; OBC:7% Maximum permissible error; SC:10% Maximum permissible error] .
 - Test on Noting and Drafting. The matter will have to be transcribed on computer.
 - The skill test shall include a word processing, spread sheet, knowledge of basic government rules, knowledge of procurement, Financial rules, comparative statements, bids, accounting process, balance sheet etc. will be included.

Final Selection

- ❖ Merit list shall be based on written test [Stage – I] to be drawn only for the candidates qualified in skill test.

Note: Any guidelines/instructions received from Ministry of Education till the date of completion of Selection Process shall be applicable.

Selection Process for Recruitment of Technician

Selection Process for the post of **Technician** will consist of two stages as detailed below:

Stage-I: Multiple Choice Based Written Test.

Stage-II: Skill Test [Qualifying in nature. Only for those who are successful after the Stage-I].

Syllabus and Scheme of Examination

Stage-I [Multiple Choice Based Written Test]

- ❖ Written Test will be of 60 Minutes duration comprising of 60 questions.
- ❖ Each correct answer will be awarded one (1) mark and for each wrong answer 0.25 marks will be deducted.

❖ **Syllabus**

Part - A (60 questions. Applicants with 10+2 Level and 10/10+2 with ITI should attempt only Part- A)

- General English and General Hindi
- Quantitative Aptitude
- Verbal and Non Verbal Reasoning
- General Studies & Current Affairs
- General Science (such as Physics, Chemistry, Biology, Mathematics and Environment)
- Application of Computer Software like MS-Word, Excel, Power Point, Tally etc. used in day-to-day office work.
- Internet, e-mail and various online tools used in day-to-day office work.

Part- B [60 questions. Diploma holders should attempt only Part - B]

- General English and General Hindi
- Quantitative Aptitude
- Verbal and Non Verbal Reasoning
- General Studies & Current Affairs
- General Science (such as Physics, Chemistry, Biology, Mathematics and Environment)
- Application of Computer Software like MS-Word, Excel, Power Point, Tally etc. used in day-to-day office work.
- Internet, e-mail and various online tools used in day-to-day office work.
- Basic Questions on Engineering

Introduction to Civil Engineering: Basic Areas in Civil Engineering, Role of Civil Engineer in the construction of buildings, dams, expressways, and infrastructure projects for 21st century.

Importance of an interdisciplinary approach in engineering. Materials and Construction: Basic materials for construction – cement, bricks, stone, natural and artificial sand, Reinforcing Steel – Mild, Tor, and High Tensile Steel. Concrete Types - PCC, RCC (prestressed and pre-cast). Recycling of materials. Substructure – Definition and functions of foundations. Types of Construction – Load bearing, Framed, Composite, Fundamental requirements of masonry. Use of maps and field surveys: Principles of survey, Introduction to scale, types of maps and their uses. Ecology and Ecosystem: Concept of Environment – biotic and abiotic factors, Impact of the human behavior and the technological advancements on the environment. Need for conserving natural resources and preserving the environment. Engineer's role in achieving sustainable development, Environment Impact Assessment (only concept). Introduction to solid waste management, electronic wastes and its disposal. Energy and Environmental Pollution: Types of energy – conventional and non-conventional. Need for harnessing alternative energies to meet the increased demand. Methods of harnessing energies. Sources, causes, effects and remedial measures associated with Air Pollution, Water pollution, Noise Pollution, Land Pollution.

Mechanics Introduction: System of forces, coplanar concurrent force system, equilibrium of rigid bodies, free body diagram, Lami's theorem, Varignon's theorem, Analysis of framed structure: Reaction in beam with different end conditions, determination of reactions in members of trusses. Centre of gravity and moment of inertia: Concept of C.G and centroid, position of centroid, theorem of parallel and perpendicular axes, moment of inertia of simple geometrical figures. Types of Friction, Introduction to stress and strain, Elastic constants. Basics of Thermal and Fluid Science: Introduction, thermodynamics properties, forms of energy, thermodynamic systems and control volume, steady flow systems, types of work, thermodynamic processes, Zeroth, first and second law of thermodynamics, Reversible and Irreversible processes, steady-state energy equation and its applications, Heat engine, Heat pump and refrigerator, COP.

Introduction to IC Engine: two-stroke engine, four stroke engine, Otto Cycle, Diesel Cycle and dual cycle. Introduction to fluid mechanics, Properties of fluids, surface tension, compressibility, pressure measurement.

Electrical circuit, circuit elements resistance, inductance & capacitance, Kirchhoff's laws, voltage source & current source, superposition theorem, Thevenin's theorem, norton's theorem, duality, star-delta transformation. DC Transients AC circuits, periodic function, average & r.m.s. values, steady state behavior with sinusoidal excitation, phase representation, reactance & impedance, power and power factor, series & parallel circuit, resonance and quality factor, principle of generation of single phase & three phase voltages, power in balanced three phase ac system. Power

systems: elementary idea about bulk power generation, long distance transmission and distribution, industrial and residential distribution, safety & legal standards. Magnetic circuit, flux, mmf, reluctance, analogy with electric circuits. Simple calculations for composite magnetic circuits. Magnetic Coupling Coefficient Measurement of electrical current, voltage and energy in ac & dc systems. Transformer: introduction, basic principles, construction, phasor diagram for transformer under no load condition, transformer on load, balance of mmf on both sides, phasor diagram, equivalent circuit, open circuit & short circuit test. Electric Machines: 1. DC shunt and series motor – construction, principle of working and applications, need of starters, torque and speed control. 2. Induction motors – construction, principle of working of single phase and 3-phase motors, torque-slip characteristics.

Basic Semiconductor Physics: temperature effect, intrinsic and extrinsic semiconductor, band diagram, mobility, conductivity hall effect, Diode, Depletion layer, V-I characteristics, ideal and practical, diode resistance, capacitance, Diode Equivalent Circuits, Transition and Diffusion Capacitance, Zener Diodes breakdown mechanism (Zener and avalanche). Diode Applications: Parallel and Series Diode Configuration, Half and Full Wave rectification, Clippers, Clampers, Zener diode as shunt regulator, Voltage-Multiplier Circuits. Light-Emitting Diodes, Varactor (Varicap) Diodes, Tunnel Diodes, Liquid-Crystal diodes and displays. Transistor Theory: Bipolar Junction Transistor, Transistor Construction, Operation, Amplification action. Common Base, Common Emitter, Common Collector Configuration. Amplifiers. Field Effect Transistor: Construction and I-V Characteristics of JFETs. Construction and I-V Characteristics of MOSFET, CS, CD, CG amplifier and analysis of CS amplifier MOSFET (Depletion and Enhancement) Type. Digital Electronics: Introduction to digital electronics, Number Systems, Conversion between various number systems, Basic Logic gates. Operational Amplifiers: Introduction, Differential Amplifier Circuits, Op-Amp Basic, Practical Op-Amp Circuits (Inverting Amplifier, Noninverting Amplifier, Unit Follower, Summing Amplifier, Integrator, Differentiator). Differential and Common-Mode Operation. Fundamentals of Communication Engineering: Elements of a Communication System, Need of modulation, electromagnetic spectrum and typical applications, terminologies in communication systems, Basics of signal representation and analysis, Fundamentals of amplitude and angle modulation, modulation and demodulation techniques.

Overview of a computer system, Block diagram and major parts of a computer, history of computer development, introduction to binary, octal, & hexadecimal numbers, ASCII code, different levels of programming languages – machine language, assembly language, high level language; need of operating system, tree structure of storage, introduction to assembler, compiler

and interpreter. Introduction: Flow charts, data types and storage classes, scope of variables, arithmetic operators, assignment, conditional, arithmetic expressions, enumerated data types, decision making, branching, looping, Switch concept, function and parameter passing, recursive functions, macros. Basic programming algorithms: Programs to illustrate basic language constructs in C like - Factorial, Sine/cosine and other mathematical series, Fibonacci series, calculating squareroot of a number, calculating GCD of 2 integers (Euclid's method and otherwise), Calculating LCM of 2 integers and similar such programs. Arrays and applications: Introduction to one dimensional and 2-D array with examples. Representing a polynomial using 1-D array and polynomial operations, Use of 2-D array to represent a matrix and matrix operations. Character arrays (strings): String related functions (strlen, strcpy, strcat, strcmp, reverse etc.) and their function definitions. Searching and Sorting methods: Selection sort, Bubble sort, Insertion sort, Linear and binary search, partitioning an array, merging of 2 sorted arrays. Structures and Unions: Basic concept, array of structures and its applications. Pointers: Introduction (declaration and initialization), pointers and arrays, concept of dynamic memory allocation, use of pointers to represent variable-sized 1-D and 2-D arrays, pointers to structures. File Management in C: Open, close, read and write operations, Sequential and text files.

❖ **Qualifying Marks and Maximum number of candidates for next Stage:**

- Minimum Qualifying Marks: [UR: 50%; OBC: 45%]
- Further, number of candidates for subsequent stages of selection process will be restricted to six [06] times the number of posts in each category, subject to availability of candidates applied and securing marks more than the minimum qualifying marks.

Stage-II [Skill Test]

- ❖ Skill Test will be for a duration of 01 Hr.
- ❖ Only those who are qualified in the written test [Stage-I], will be allowed to appear in the Skill Test.
- ❖ Candidate's skills and abilities will be checked and categorized as 'qualified or not-qualified'. The qualifying mark for the skill test is 50%.
- ❖ **Syllabus**
 - Domain practical knowledge in the relevant area specific to the post related to the Department/ Section applied for from the Trade/ Branch relating to Instrumentation / Lab. Systems / Practical / Experimental / Analytical / Model / Prototype Development etc.

Final Selection

- ❖ Merit list shall be based on Written test [Stage – I] to be drawn only for the candidates qualified in skill test.

Note: Any guidelines/instructions received from Ministry of Education till the date of completion of Selection Process shall be applicable.

Selection Process for Recruitment of Office Attendant

Selection Process for the post of **Office Attendant** will consist of two stages as detailed below:

Stage-I : Multiple Choice Based Written Test

Stage-II : Skill Test [Qualifying in nature. Only for those who are successful after the Stage-I].

Syllabus and Scheme of Examination

Stage-I [Multiple Choice Based Written Test]

- ❖ Written Test will be of 60 Minutes duration comprising of 60 Questions.
- ❖ Each correct answer will be awarded one (1) mark and for each wrong answer 0.25 marks will be deducted.
- ❖ **Syllabus**
 - Reasoning ability, Simple Arithmetic, General Awareness and Current Affairs. Knowledge of English which may include Antonyms, synonyms, verbs, tenses, adverbs, grammar, articles, fill in the Blanks, error correction etc. Knowledge of Computer applications.
- ❖ **Qualifying Marks and Maximum number of candidates for next Stage:**
 - Minimum Qualifying Marks: [UR:50%; EWS:45%; OBC:45%];
 - Further, number of candidates for subsequent stages of selection process will be restricted to six [06] times the number of posts in each category, subject to availability of candidates applied and securing marks more than the minimum qualifying marks.

Stage-II [Skill Test]

- ❖ Skill Test will be for a duration of 01 Hr.
- ❖ Only those who are qualified in the Written Test [Stage-I], will be allowed to appear in the Skill Test.
- ❖ Candidate's skills and abilities will be checked and categorized as 'qualified or not-qualified'. The qualifying mark for the skill test is 50%.
- ❖ **Syllabus**
 - The skill test is evaluating the candidates' ability to perform regular day-to-day activities usually as called for assisting Director, Registrar, Deans, HODs, various sections and offices at the Institute, Departments such as other duties as assigned etc. As part of the skill test, three tasks will be given and evaluation will be based on the performance of all the three tasks together. Tasks may be filling up of various forms, bank challans, indexing and filing, book keeping, basic accountancy, use and updating of stock registers, photo copying, inward entries, preparation of dispatch schedule etc.,

- A basic computer skill to assess their general application knowledge in office.

Final Selection

- ❖ Merit list shall be based on Written test [Stage – I] to be drawn only for the candidates qualified in skill test.

Note: Any guidelines/instructions received from Ministry of Education till the date of completion of Selection Process shall be applicable.