

Department of Electronics & Communication Engineering

Technical Assistant

Stage-I (Screening Test)

Stage-I (Screening Test): A screening test shall be conducted in the first phase in form of multiple choice written test. Written test shall be of **90 minutes'** duration comprising of **75 questions**. Each **correct answer will be awarded One [1] mark** and for each **wrong answer One-fourth [1/4] mark shall be deducted**. Screening test shall consist of questions on **General English**(Tenses, Active and Passive, Direct and Indirect speech, Punctuation, Correction of sentences, One word substitutes, Modals, Articles, Clauses, Synonyms, Antonyms, Idioms and Phrases); **Numerical Aptitude Arithmetic**(Simplification of Fractions, Simple and Compound Interest, Profit and Loss, Percentage, Averages, Number System, Time and Work, Problems on Trains, Calendar, Area, Problems on Numbers, Square root, Cube root, Time and Distance and Other basic Arithmetic related matters);**Reasoning and Data Interpretation** (Number Series Compilation, Missing Number finding, Pattern series, Direction Sense Test, Series Compilations, Classification, Missing Character finding, odd man out, Blood relations, Analogy, Coding and Decoding, Letter and Symbol Series, Verbal reasoning, Statement and Conclusions, Letter and Symbol Series, Logical Problems, Arithmetic reasoning, Logical Sequence of words, Pie Chart and Bar Chart).

Eligible candidates **Ten Times** of the positions in each category will be screened for the Stage-II subject to the fulfillment of all educational qualification etc. as per the Recruitment Rules-2019.

Stage-II (Skill test)

Stage-II (Skill Test): The skill test will be of qualifying nature.

Laboratory Experiments etc. as per nature of the post shall be conducted in the respective laboratories/field. Minimum qualifying marks in the skill test will be [UR:30%; EWS:27%; OBC:27%; SC;20%; ST:20%; PwD:15%].

The candidates, who will qualify the skill test, will be called for the final written test. The Candidates appearing in the written test must ensure their eligibility for the particular category of post. The documents in support of their eligibility shall be verified before the Final test. If

any candidate will not have requisite qualification etc. as per the post for which he is appearing will not be allowed to sit in the final test (Stage-III).

Stage-III (Final test)

Stage-III (Final Test): Final written test shall be of 2 hours duration comprising of 100 multiple choice questions.

Each **correct answer will be awarded One [1] mark** and for each **wrong answer One-fourth [1/4] mark shall be deducted**. Only those who are screened in after the Screening test [Stage –I] and qualify the Skill Test [Stage-II] will be allowed to appear in the Final Test [Stage III]. The minimum passing marks in Final test will be [UR:30%; EWS:27%; OBC:27%; SC;20%; ST:20%; PwD:15%].

The final merit list shall be drawn on the basis of the stage-III written test.

SYLLABUS FOR SKILL TEST AND FINAL WRITTEN TEST IS AS PER ANNEXURE-IV.

Department of Electronics & Communication Engineering

Syllabus for Skilltest (Technical Assistant)

- Basic Electronics etc
- Analog and Digital Electronics.
- Basic Electrical Engineering Concepts.
- Communication Concepts
- AC Fundamentals.
- Measurement and measuring instruments.
- Magnetic Circuit.
- Embedded Systems
- Basic Computer Knowledge
- IT Literacy

Department of Electronics & Communication Engineering

Syllabus for Final written test (Technical Assistant)

1. Aptitude- Averages, Number System, Profit and Loss, Time and Work, Problems on Trains, Compound Interest, Decimal Fractions, Calendar, Area, Problems on Numbers, Square Root and Cube Root, Boats and Streams, Probability, Interest, Percentage, Ratio, Time And Distance, Problems on Ages, Partnership, Clock, Simplifications, Volume and Surface, Problems on H.C.F And L.C.M, Logarithm, Chain Rule, Pipes and Cistern, Odd Man Out and Series, Height and Distance.

2. Reasoning- Number Series Compilation, Missing Number Finding, Continuous Pattern Series, Direction Sense Test, Puzzle, Verbal Classification, Matching Definitions, Logical Deduction, Series Compilations, Classification, Missing Character Finding, Odd Man Out, Blood Relations, Analogy, Coding And Decoding, Truth Verification Of The Statement, Syllogisms, Analogies, Verbal Reasoning, Statement And Conclusions, Letter And Symbol Series, Logical Problems, Logical Sequence Of Words, Arithmetic Reasoning, Data Sufficiency.

3. General English- Antonyms, Synonyms, Spelling Check, Change of Voice, Spotting Errors, Sentence Improvement, One Word Substitute, Selecting Words, Sentence Corrections, Idioms and Phrases, Communication Skills, Common Error Detection, Sentence Compilation, Ordering of Words, Ordering of Sentences, Verbal Analogies, Sentence Formation, Completing Statements, Change of Speech.

4. Data Interpretation: Pie Chart, Bar Chart, Line Chart, Table Chart

5. GK- Indian History, Indian Economy, Indian Culture, Environmental Science, Awards And Honors, Famous Places In India, World Organization, Sports, Books And Authors, Famous Personalities, Days And Years, World Geography, Basic General Knowledge, Physics, Biology, Indian Politics, Indian Geography, General Science, Chemistry, Technology, Inventions, Current Affairs.

6. Computer Fundamentals- Operating System, MS Word, MS Excel, Power Point

7. Basic Engineering - Annexure – I

ANNEXURE-I

Networks, Signals, and Systems:

- (1) Node and mesh analysis, superposition, Thevenin's theorem, Norton's theorem, reciprocity theorem. Maximum power transfer
- (2) Sinusoidal steady state analysis: phasors, complex power, analysis of linear circuits: RL, RC and RLC circuits, solution of network equations using Laplace transform, Linear 2-
- (3) Continuous-time signals: Fourier series and Fourier transform, applications.,
- (4) Discrete-time signals: DTFT, DFT, Z Transform. LTI systems: definition and properties, causality, stability, impulse response, convolution, poles and zeros, frequency

Electronic Devices and systems:

- (1) Energy bands in intrinsic and extrinsic semiconductors, equilibrium carrier concentration, direct and indirect band-gap semiconductors,
- (2) Carrier Transport Mechanism generation and recombination of carriers, Poisson and continuity equations. Zener diode, photo diode, solar cell,
- (3) Analog Circuits: clipping, clamping and rectifiers, BJT and MOSFET coupling, small signal analysis, frequency response, differential amplifiers, Amplifiers, summers, differentiators, integrators, active filters
- (4) Digital Electronics: number systems, algebra, minimization of functions using Boolean identities and Karnaugh map, logic gates, arithmetic circuits, code converters, multiplexers, decoders. shift-registers, propagation delay, ROM, SRAM, D and DACs.,
- (5) Microprocessors fundamentals; and control unit, instruction pipelining.

Control Systems:

- (1) Basic control system components; Feedback principle; Transfer function; Block diagram representation; Signal flow graph; Transient and steady Frequency response.
- (2) Routh-Hurwitz and Nyquist stability criteria; Bode and Root locus and solution of state equation of LTI systems.

Communications:

- (1) Concept of signal, bandwidth, its properties, filtering of random signals through LTI systems, amplitude modulation and demodulation, angle modulation and demodulation, spectra of AM and FM signals, superheterodyne receivers,

(2) Sampling and quantization of signals, PCM, DPCM and ADPCM.

(3) Digital modulation schemes (ASK, PSK, FSK, QAM), inter detection and BER, Fundamentals of error entropy, mutual information and channel capacity theorem.

Electromagnetics:

(1) Maxwell equations, Plane waves and propagations and group velocity, characteristic impedance, Wave phenomenon like polarization,

(2) Basic concepts of radiations and antenna, linear antenna arrays.