

**Syllabus for Written Test and Selection Criteria for recruitment to the post of Technical Assistant(Electronics and Communication Engineering), Pay Level - 06**

<b>General</b>	<b>Post Related</b>
<p>1. Aptitude- Profit and Loss, Time and Work, Decimal Fractions, Problems on Numbers, Square Root and Cube Root, Time and Distance, Simplifications.</p> <p>2. Reasoning- Number Series Compilation, Missing Number Finding, Continuous Pattern Series, Matching Definitions, Missing Character Finding, Odd Man Out, Blood Relations, Coding and Decoding, Logical Sequence of Words, Arithmetic Reasoning.</p> <p>3. General English- Change of voice, Spotting Errors, Sentence Improvement, One Word Substitute, Sentence Corrections, Idioms and Phrases, Communication Skills, Sentence Formation.</p> <p>4. General knowledge and Awareness- Current Affairs, Government Schemes, Economics, Geography, Indian History, Indian Polity, Indian Constitution</p>	<p>1. Circuits, Signals and Systems -Circuit analysis: Node and mesh analysis, superposition, Thevenin's theorem, Norton's theorem, reciprocity, maximum power transfer, Linear 2-port network parameters, Star-delta transformation, Continuous-time signals: Fourier transform, sampling theorem and applications, Classification of Signals &amp; Systems, z-transform, LTI systems: definition and properties, causality, stability, impulse response, convolution, poles and zeroes, group delay, phase delay.</p> <p>2. Semiconductor Devices -Energy bands in intrinsic and extrinsic semiconductors, Carrier transport: diffusion current, drift current, continuity equations, P-N junction, Zener diode, BJT, MOSFET, LED, photo diode and characteristics.</p> <p>3. Analog Circuits: Diode circuits - clipping, clamping and rectifiers, BJT and MOSFET amplifiers, biasing, small signal analysis, Feedback concept, Classification of Feedback amplifiers, Op-amp circuits, Amplifiers, summers, differentiators, integrators, oscillators.</p> <p>4. Digital Electronics- Number representations, Boolean algebra, K maps, arithmetic circuits ,Logic families: (TTL, RTL, DTL, ECL and MOS), code converters, multiplexers, Demultiplexers, Encoders, decoders, Sequential circuits: flip-flops, counters, shift-registers, ADCs and DACs, Semiconductor memories: ROM, RAM, Cache memory, Virtual memory, Computer organization: addressing modes, instruction pipelining.</p> <p>5. Communications: Random processes -Autocorrelation and power spectral density, properties of white noise, Analog</p>

	<p>communications, amplitude modulation and demodulation, angle modulation and demodulation, spectra of AM and FM, super heterodyne receivers, Information theory, entropy, channel capacity theorem, Digital communications: PCM, DPCM, digital modulation schemes(ASK, PSK, FSK, QAM), bandwidth, inter-symbol interference. Basics of radar; Light propagation in optical fibres. Basics of Mobile Communication.</p> <p>6. Electromagnetics - Maxwell equations, Plane waves and propagations and group velocity, characteristic impedance, Wave phenomenon like polarization, Basic concepts of radiations and antenna, linear antenna arrays.</p>
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Scheme of Examination	Selection Criteria	Instructions (General Paper / Post Related)	Proficiency Test
<p><b><u>General Paper:</u></b>  Questions - 50  Marks - 50  Duration: 01 Hour</p> <p><b><u>Post Related Paper:</u></b>  Questions - 50  Marks - 50  Duration: 1:30 Hour</p>	<p>1. Written Test (Part-A):  Qualifying in Nature for  evaluation of part B.  Qualifying marks to be  decided on the basis of  performance of the candidates.</p> <p>2. Written Test (Part-B): Merit  list will be drawn on the basis  of score of the candidate</p> <p>3. Proficiency Test: The  Candidates shortlisted based  on the Written Test (Part B)  will be called for Proficiency  Test, to be conducted after the  Document Verification  process.</p>	<p>1. This Part will comprise of  objective-type questions with one  correct answer.</p> <p>2. One (1) mark will be awarded  for each correct answer &amp; minus  one forth (- 1/4) mark for each  incorrect answer.</p> <p>3. The unanswered questions will  not attract negative marks.</p>	<p>The syllabus of the  Proficiency Test will be  shared with the shortlisted  candidates.</p>