

Syllabus of Paper-I (General Ability Test)
Assistant Commandant (Communication)

1. **General Awareness & Current affairs:-**

Subject
Knowledge of current events of national and international importance
History of India and Indian National Movement
Indian and world Geography- Physical, Social, Economic .
Indian Polity and Governance- Constitution, Political System, Panchayat Raj, Public policy, Right Issues.
Economical and Social Development- Sustainable Development, Poverty, Inclusion, Demographics, Social Sector Initiatives.
General Issues on Environmental Ecology, Bio-Diversity and Climate Change
General Science

2. **Numerical ability and Reasoning:-**

Subject
Simplification
Number System
Average
Percentage
Ratio and Proportion
Interest
Number series
Data Interpretation
Profit and Loss
Mensuration
Permutation and Combination
Inequalities
Ordering and Ranking
Directions and Distances
Coding and Decoding
Blood Relation
Syllogisms
Circular Seating arrangement
Linear Seating Arrangement
Double Line Up
Grouping
Selection

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3. समझ और संचार कौशल:— (Hindi) (Optional)

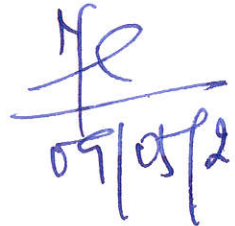
रिक्त स्थानों की पूर्ति करें (कियाएँ, संबंधबोधक, आलेख इत्यादि)
शब्दकोश, शब्द-विन्यास/ गलत-वर्तनी शब्दों का पता लगाना
व्याकरण और विराम –चिन्ह का प्रयोग
वाक्य भागों का मिलान
समानार्थक शब्द और विलोम शब्द
शब्द प्रतिस्थापन
वाक्य को पूर्ण करना और वाक्यों को सुधारना
वाक्यांशों और मुहावरेदार शब्दों का प्रयोग
सक्रिय-निष्क्रिय और कथन
अपठित गद्यांश
वक्तव्य और आकलन

OR

Comprehension and communication skill (English) (Optional)

Fill in the blanks (using verbs, preposition, articles etc)
Vocabulary, Spellings/detecting mis-spelt words
Grammar and Punctuation
Shuffling of sentence parts
Synonyms & Antonyms
One word substitution
Sentence Completion & improvement of sentences
Phrases and Idiomatic use of Words
Active-Passive & Narrations
Comprehension of an unseen passage
Statement & Assumption

Note: The Syllabus is suggestive and indicative in nature having only broader areas for reference. The candidate is expected to have the holistic and expanded knowledge of the subject/syllabus.


09/05/24

सहायक (सिटी)
संयोजक (सिटी)
संयोजक (सिटी) (श्री मंत्रा)
संयोजक (सिटी) (एड. ए. एस. ए. एस.)
एड. ए. एस. ए. एस., एड. ए. एस. ए. एस.
एड. ए. एस. ए. एस., एड. ए. एस. ए. एस.
एड. ए. एस. ए. एस., एड. ए. एस. ए. एस.

**SYLLABUS (PAPER-II) FOR THE POST OF ASSISTANT
COMMANDANT(COMMUNICATION) IN SSB**

1. <u>Basic Electronics Engineering</u>
Basics of Semiconductors, Diode/Transistor Basics and Characteristics, Diodes for different uses; Junction & Field Effect Transistors (BJTs, JFETs, MOSFETs).
Transistor Amplifiers of different types, Oscillators and other circuits.
Basics of Integrated Circuits (ICs); Bipolar, MOS and CMOS ICs.
Basics of linear ICs, operational amplifiers and their applications-linear/non-linear, Optical sources/detectors, Basics of Optical electronics and its applications.
2. <u>Basic Electrical Engineering</u>
DC Circuits-Ohm's & Kirchhoff's Laws, Mesh and Nodal Analysis, Circuit Theorems.
Electro-Magnetism, Faraday's & Lenz's Laws, Induced EMF and its uses, Single-Phase AC Circuits.
Transformers, Efficiency.
Basics of DC Machines, Induction Machines, and Synchronous Machines.
Electrical Power Sources-Basics: Hydroelectric, Thermal, Nuclear, Wind, Solar, Basics of Batteries and their uses.
3. <u>Electronic & Electrical Measurements and Instrumentation</u>
Principles of Measurement, Accuracy, Precision and Standards.
Analog and Digital Systems for Measurement, Measuring Instruments for Different Applications.
Static / Dynamic Characteristics of Measurement Systems, Errors, Statistical Analysis and Curve Fitting.
Different Types of Transducers and Displays.
Data Acquisition System Basics.
Basics of sensors, Transducers, Basics of Data Acquisition Systems.
Measurement of Voltage, Current, Power, Energy and Power Factor, Instrument Transformers, Digital Voltmeters and Multi-meters.
4. <u>Network Theory</u>
Network Graphs & Matrices, Wye-Delta Transformation.
Linear Constant Coefficient Differential Equations- Time Domain Analysis of RLC Circuits.
Solution of Network Equations using Laplace Transforms-Frequency Domain Analysis of RLC Circuits.
2-Port Network Parameters-Driving Point & Transfer Functions.
State Equations for Networks; Steady State Sinusoidal Analysis.
5. <u>Analog and Digital Circuits</u>
Diode Circuits for Different uses, Biasing & Stability of BJT & JFET Amplifier circuits. Analysis / Design of Amplifier-Single / Multi-Stage, Feedback & uses.
Active Filters, Timers, Multipliers, Wave Shaping, A/D-D/A Converters.
Boolean Algebra & uses, Logic Gates, Digital IC Families, Combinatorial/Sequential Circuits.
Basics of Multiplexers, Counters / Registers / Memories / Microprocessors, Design & Applications.

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6. <u>Analog and Digital Communication Systems</u>
Random Signals, Noise, Probability Theory, Information Theory.
Analog Versus Digital Communication & Applications: Systems- AM, FM, Transmitters/ Receivers, Theory / Practice/ Standards, SNR Comparison.
Digital Communication Basics: Sampling, Quantizing, Coding, PCM, DPCM, Multiplexing-Audio/Video.
Digital Modulation: ASK, FSK, PSK, Multiple Access: TDMA, FDMA, CDMA. Optical Communication: Fiber Optics, Theory, Practice/Standards.
7. <u>Computer Organization and Architecture</u>
Basic Architecture, CPU, I/O Organization, Memory Organization, Peripheral Devices, Trends.
Hardware / Software Issues; Data Representation Programming; Operating Systems-Basics, Processes, Characteristics, Applications.
Memory Management, Virtual Memory, File Systems, Protection & Security.
Data Bases, Different Types, Characteristics and Design; Transactions and Concurrency Control.
Elements of Programming Languages, Typical Examples.
8. <u>Electro Magnetics</u>
Elements of Vector Calculus, Maxwell's Equations-Basic Concepts. Gauss' & Stokes' Theorems; Wave Propagation Through Different Media.
Transmission Lines-Different Types, Basics, Smith's Chart, Impedance Matching / Transformation, S-Parameters, Pulse Excitation, Uses.
Waveguides-Basics, Rectangular Types, Modes, Cut-Off Frequency, Dispersion, Dielectric Types.
Antennas-Radiation Pattern, Monopoles / Dipoles, Gain, Arrays-Active / Passive, Theory, Uses.
9. <u>Advanced Electronics</u>
VLSI Technology: Processing, Packaging, Testing; and VLSI Design: Principles, MUX/ROM/PLA-Based Design; DSP: Discrete Time Signals / Systems, Uses.
Digital Filters: FIR/IIR Types, Design, Speech / Audio / Radar Signal Processing Uses.
Microprocessors & Microcontrollers, Basics, Interrupts, DMA, Instruction Sets, Interfacing. Controllers & Uses; Embedded Systems.
10. <u>Advanced Communication</u>
Communication Networks: Principles / Practices / Technologies / Uses / OSI Model / Security.
Basic Packet Multiplexed Streams / Scheduling; Cellular Networks, Types, Analysis, Protocols (TCP/TCP/IP).
Microwave Communication: Terrestrial / Space Type LOS Systems, Block Schematics Link Calculations, System Design.
Satellite Communication: Communication Satellites, Orbits, Characteristics, Systems, Uses.
11. <u>Material Science & Electrical Material</u>
Electrical Engineering Materials, Crystal Structure & Defects, Ceramic Materials Structures; Composites, Processing and uses.
Insulating Laminates for Electronics, Structures properties and uses; Magnetic Materials, basics, classifications, ferrites, Ferro/Para-magnetic Materials and Components.
Nano materials- Basics, Preparation, Purification, Sintering, Nano Particles and uses.
Basics of solid state physics, Conductors, Photo-Conductivity, Basics of Nano materials and Superconductors.

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12. Control Systems

Classification of signals and systems, Application of signal and system theory, System realization, Transforms & their applications.

Signal flow graphs, Routh-Hurwitz criteria, Root loci, Nyquist/Bode Plots; Feedback systems-open & close loop types.

Stability Analysis, Steady State, Transient and Frequency Response Analysis.

Design of control systems, Compensators, Elements of lead/lag Compensation, PID and Industrial Controllers.

13. Power Systems & Power Electronics and Drives

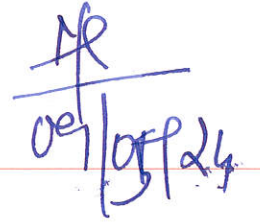
Transmission line models and performance, Cable Performance, Insulation and Radio Interference, Power factor correction.

Principles of protection systems, Basics of solid state relays and digital protection, Circuit breakers.

Phase control rectifiers, bridge converters - fully controlled and half controlled principles of inverters.

Basic concepts of adjustable speed DC and AC Drives, DC-DC switched mode converters, DC-AC switched mode converters.

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 09/10/24

कमांडेंट (भर्ती)
 Commandant (Rec'tt)
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