SYLLABUS FOR DEPARTMENTAL EXAM FOR EXTRA ASSISTANT DIRECTOR

1. The examination will consist of two papers mainly (i) General Administration & Accounts and (ii) Technical. Both papers will be of 100 marks each and three hours duration. The each paper will consist of 20 questions carrying two marks each and 12 questions carrying five marks each.

2. The syllabus for each of these papers will have four sections having weightage marks of 25 marks each. The fourth section of the Technical paper would have 50% choice.

PAPER – 1 : GENERAL ADMINISTRATION & ACCOUNTS

SECTION	SYLLABUS	WEIGHTAGE
A	Appointment, Seniority & promotion, office procedure, office management.	25
B	Conduct Rules, Disciplinary Rules, Leave Rules.	25
C	Procurement of goods & services, General Financial Rules, Inventory management.	25
D	Travel Expenses, LTC, Advances, Pay & Allowances, Retirement benefits Special benefits for those posted in NE region.	25

PAPER – II : TECHNICAL

SECTION	SYLLABUS	WEIGHTAGE
A	**Digital Communication**: Bit rate, Baud rate, information capacity, Pulse Modulation, Delta Modulation, Adaptive Delta Modulation, Advantages of digital communications. **Data Communication:** Basic Concept, Synchronous / Asynchronous Transmission, Data Communication Codes, Transmission Errors, Error Detection Techniques, Switching Techniques -Circuit switching , Message switching, Packet switching. Network Topologies, Various Protocols x25, x28,x75, x400. **Multiplexing and Access Techniques:** Basic concept, Different typesof modulation - FDM, Access techniques - TDM , FDMA, TDMA & CDMA. **Microwave Radio Communication:** Basic concept, Microwave repeaters, Diversity – Frequency diversity, space diversity, polarization diversity	25

B	**Satellite Communication:**	25
	Basic concept, Antennas, VSAT Communication.	
	Optical Fiber Communication:	
	Basic concept, Modes of Propagation.	
	Computer Operation & Communication:	
	Hardware, Operating Systems, Application Software, Database Management, Computer Networking, MODEM , Local area Network, Wide Area Network, Internet, Intranet.	
	Trunking & future technologies :	
	Radio Trunking Systems, Various types of Radio Trunking Systems, TETRA, APCO P25, DMR etc.	
	Basic concept of Wi Max, 3G,, 4G, LTE.	
C	**POLICE COMMUNICATION:**	25
	Importance of Communication in Police; Command, Control, Communications and Computer, Concept of " response time" Real time Communication and Store & Forward Communication, Emergency Communication –	
	Network Planning :	
	Propagation of electromagnetic waves: HF, VHF/UHF and Microwave. Selection of frequencies, Sharing of frequencies, Interference and Preventive measures, Profile survey for microwave communication. Network Planning – Grid working and point-to-point working, Simplex, duplex systems, selective calling, broad-casting Systems; Power output, bandwidth, modulation and maintenance considerations. Different types of aerials for grid working and HF/VHF/UHF.	
	Communication equipment:	
	Planning, storage and procurement of spare parts, preventive Maintenance.	
	Organisations related to Communications:	
	Roles and functions of Ministry of Communication & IT, ITU, WPC, BIS, STQC, JCB, SAG, DRDO, ISRO –	

D	RADIO COMMUNICATION PROCEDURE, EQUIPMENT AND SECURITY :	25
	Police Wireless procedures (R/T), Signal Centre Procedure, Guidelines for the users and Scrutiny of traffic. Need for signal security, classified and unclassified information and security grading, procedure for handling of classified traffic, cryptographic, basic principles and systems in use, introduction of cryptography-handling of crypto-documents and setting of crypto-centres, cryptographic machines-basic principles and features of existing machines, crypto-phonic devices-basic principles and features of existing machines. **Communication Equipment :** Batteries, Antennas , High Frequency Transmitters & Receivers, VHF Transceivers for Mobile and static use, Specifications of Communication Equipment, Procedures for testing and evaluation of equipment, Procedure for procurement & condemnation of equipment, Test Instruments. Modern Equipment: IDT, EPABX, Cryptographic Machines, SECTEL, SECFax .	