

I. Entry Level Examination (Self Knowledge Based)

(M.M.=100)

(Min. pass marks=50)

Training Module for Grade-II with P.P. A.S.I. (Radio) to S.I.(Radio)

S. No	Topic	Topic details
1	A.C. theory & Networks analysis	<u>Brief introduction only</u> 1. Brief theory of Alternating Current 2. Concept of Power, voltage, current, impedance & power factor etc. 3. Basic R,L,C components , resonance, & basic circuit idea. (filter, coils & coupling etc.)
2	Power electronics	2. Definitions and specifications of basic electronic circuitry Voltage regulator, Power supply, SMPS and different batteries(Li-ion , Li-polymer & VRLA Battery)
3	Electronic devices and circuits	3. Semi conductors, Diode, Transistors/MOSFET, Opto-electronic devices, Amplifier , Oscillator & MODEM definitions , properties & specifications.
4	Digital electronics	4. Introduction to multiplexer, Flip flops, resistors and micro processor application in radio sets.
5	Radio communication technique	5. Modulation techniques (AM, FM, PM, FDMA TDMA, & PCM,) Transmitter & Receiver
6	Transmission line, antenna and wave propagation	6. Types of transmission line, antenna and brief introduction of wave propagation SWR, impedance match, types of regular cables in use.
7	Brief Introduction of Radio Operating Procedure on following points.	1.Pro sign, Authorized abbreviation. Operating signals. 2.Types of message, Section and component of formal message, Component used in procedure message, Service message. 3.General instruction on message writing. Use of priorities, security. 4.Out message, In message, Through message, N.R slip, delay memo. 5. Call and call sign, preliminary calling and answering, establishing communication, discipline to be exercised when calling and answering, offering message. 6.Transmitting message, Reception of message. Identification, Checks, Repetitions and correction check, Repetition and correction of group count, Control working break in working .Time signal, Emergency silence, Authentication. 7. "F" method , "G" method, Broadcast method (B.C.) difficult communication method (D.C.) 8.Operating rules, Radio log, Recording of message, Handing and taking over charge the watch. 9. Abbreviated procedure. 10.Distress signal, Alarm signal, Urgency signal, Safety signal. 11.General types of R/T communication, How to speak, Preliminary calling and answering, Control working, initiating R/T conversation, Transmitting and receiving formal message, Abbreviated R/T procedure, Security. 12. Q code and P code. 13. D.S.R. 14. Basic knowledge of communication security, PWCC. 15. Duties of OIC (R) watch and S.S.O. Signal security. 16. Handling of CSD/Cipher document.
8	Message receiving/sending by e-mail.	Message receiving/sending by e-mail. (each 5 message practice)

II. Technical Knowledge (Theory)

Training Module for Grade-II cum P.P. Course- ASI (Radio) to SI (Radio) (Duration=04 Months)

S.No	Topic	Description of Topic	No. of Period (240)
1	Digital Trunking System	1.1- Introduction to Trunking concept & System Operations. 1.2- Field operation, Talk group management, Trunking Operation, Fail-soft mode status. 1.3- Working function of main components and handling and precautions. 1.4- System advantages over conventional systems, Introduction to TETRA system, Specifications & features.	10
2	Dial-100 :- System architecture & System operations	(A) Define objective role of officer in charge Dial-100. 1. Introduction to Dial-100 system & system architecture. 2. Job description- Duties & responsibilities of Call Taker, Dispatcher, SPOC. 3. Detailed study of SOP 1 & 2 of Dial-100.	06
		(B) Role in execution of Dial-100 1. Role & responsibilities of Radio District Incharge / Supervisor in Dial-100. 2. FRV management in district (2.1) Control room Dial-100 management. (2.2) Tools & Instruments of FRV. (2.3) Staff training for Net viewer/Desk/FRV 3. MDT- Introduction & use of MPS software.	08
		(C) GIS Mapping 1. Introduction, importance & utility of P.O.I. in mapping. 2. Collection of P.O.I. in field. 3. Precautions during field data collection.	08
		(D) General Operations (on dashboard) 1. Complaint ticket generation. 2. Helpdesk operation & uses. 3. E-ticket generation. 4. Data analysis & report generation.	06
		(E) Operation on dash board. 1. Introduction of AWAYA phone system of Dial-100 call center. 2. Introduction of I-call center & I-Dispatcher software. 3. Use of dashboard for report generation.	06
		(F) Feedback & public response. 1. Feedback 2. Whatsapp Desk 3. Social Media- Facebook & Twitter handling. 4. Cyber security precautions. 5. C.M. helpline overview.	06
3	Communication Networking 3.1 VHF Network :-	1. Introduction to VHF Networks, installation process, Site selection, Height of Antenna. Repeaters & Patch units. 2. Frequency programming in VHF sets/ repeaters.	21
	3.2. Practical approach to field operation & communication management.	1. Frequency allotment in VHF network & frequency monitoring. (A) Wireless frequency spectrum licensing related rules and regulations and relevant legal provisions regarding wireless act. Indian telegraphy act 1893. (B) Proposal request form no. 11 send to WPC. Letter of intent, submission of license fees and royalty charge as spectrum charge, decision letter/agreement in principal SACFA-citing clearance, wireless operating license 2. Geographical maps, radio mobile software & installation of radio station/tower. 3. Power Source - Battery & Generator management. 4. Active lightening arrester, types & specifications.	

	3.3 HF Network	<ol style="list-style-type: none"> 1. HF installation, networking & tuning. 2. Types of HF sets and specifications. 3. Introduction of digital HF with vocoder AE installation, programme of set as per encryption key, with the help of programming software. 	
4	CCTV	<p>(A) City surveillance system –</p> <ol style="list-style-type: none"> 1- CCTV System introduction, network architecture, operation and uses. 2- CCTV System implementation in cities of m.p. 1st and 2nd phase in brief. 3- Types of cameras used in cctv system specification and working. 4- CCTV field unit / outdoor equipment and maintenance. 5- CCTV indoor/Control room equipment, maintenance & system softwares 6- Distt./City cctv police control room working. 7- SCMRC control room monitoring and working. 8- VMS, NMS, Command & Control, Helpdesk working, CCTV Networking basics and SOP. 9- ANPR system. 10- Location, Equipment and system etc. checking before & after installation of CCTV system. 11- RLVD system. 12- Mobile surveillance vehicle viewing and retrieving video. <p>(B) PS CCTV System – system features, network architecture, working and operation.</p>	24
5	5.1 Introduction of Video Conferencing	<ol style="list-style-type: none"> 1. Introduction 2. Parts of video conferencing 3. Modes of video conferencing 4. Video conferencing component & equipments. 5. Component functions 6. Remote control button & there use 7. Installation procedure of video conferencing 8. Benefits of video conferencing 	12
	5.2 UAV	<ol style="list-style-type: none"> 1. Introduction to UAV. 2. Main features & Benefits 3. Performance parameters 4. Specifications 5. Surveillance tool 6. Application areas 7. Deployment method 8. Precautions before, after & during UAV flight 9. Govt. regulations regarding UAV flight. 10. Handling of UAV & precautions. 11. Parts of UAV 12. Software introduction. 13. Anti Drone Technology 	05
	5.3 Biometric	<ol style="list-style-type: none"> 1. Overview 2. Working Procedure 3. BAS use in organization 4. Registration method 5. Requirements for BAS 6. Precautions in installation of BAS Machine 7. Types of report and there analysis. 	04
	5.4 ROIP	<ol style="list-style-type: none"> 1. Overview 2. Working procedure 3. ROIP use in organization 4. Components of ROIP, Advantages of ROIP System. 5. Common frequent problems & there Solution methods for ROIP System. 	04
6	Computer	<p>(A) Computer hardware and networking, data centre hardware introduction, working and data centre network architecture. Description of computer architecture, Input and Output devices. Introduction with computer language and volatile and Non volatile memories.</p>	<p>(A)10 (B)30</p>


		(B) MS Office (Word/Excel/Powerpoint) Basic	
7	Social Media	Computer Operation of Social networking like Whatsapp, Twitter, Facebook , SMS & Cyber Security. 1. Whatsapp - Installation, Profile updating, Privacy settings, Number saving, Group making, Message sending etc. 2-. Twitter - Installation, Profile updating, Privacy settings. 3. SMS - Message sending procedure. 4. Facebook - ID creation, Profile settings, Privacy settings, News & photo updating, Likes-comments-sharing, Searching people, relatives & friends.	12
8	Communication Network	VHF and HF networking. Way of transmission (Simplex, Half Duplex and Full Duplex). Need of repeater and its importance in VHF networking, Squelch voltage and importance in fabrication of repeater/patch unit. Advantage s of repeater and limitations. Trouble shooting in repeater, fault finding and remedy. What is trunking and key feature of TETRA trunking system. Study of various components used in trunking. Integration Techniques of digital trunking/tetra system with VHF Network.	26
9	Solar System	Working principle of Solar PV cell. How to install solar PV panel working of intelligent BTY. charger and role of MPPT charging. Designing of a power pack.	16
10	Behavioral Science	Telephone talk, Wireless talk and their etiquettes. Retention capacities, soft skills and work discipline.	02
11	Digital Mobile Radio (DMR)	Introduction, modes of DMR, Dispatcher, Microwave link, Advantages and disadvantages. Introduction of LTE based radio	16
12	APCO-25	Introduction , Operation and Advantages	08

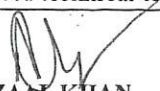
III. Professional/Official Approach (Administrative Role)
Training Module for Grade-II cum P.P. ASI(R) to SI(R)


S.No	Topic	Topic details	No. of Period(40)
1	Disaster Management	Definition of Natural calamities & disaster, Role of NDRF and SDRF, Installation of communication system during disaster. Overview of Public protection and disaster relief	04
2	Administrative function of district (radio) in charge	Administrative set up of MP Police, Functions of workshop, Store, Office, PRC in Zonal and State Head Quarters, function of various branches, DCPW, How to conduct P.E. and role of presenting officer in D.E.	04
3	Store & Purchase Rules	Introduction to GOP 126/07, Sanctioning authority of officers in Police, Procedure of keeping store ledgers. Condemnation and write off of store items, recovery of losses, Inventory Portal and Purchase Rules	05
4	Handling of Cipher documents and communication	Introduction & definition of security, Types of message, Security destruction maintenance of records etc. Process of obtaining license under telegraph act provisions, scrabbling techniques, communication breaches, cipher software.	05
5	Office Administration	Function of DDO , Official correspondence and proper way of filling documents, leave rules, TA rule, Medical rules, GPF rules, Orderly Rooms, Police Regulation, Maintenance of registers in admin, duties of OIC(R) watch, record keeping.	03
6	Role & Functions of MTO	Maintenance of Vehicles and vehicle records.	02
7	Working of Control Room in charge.	Dial-100 DPCR functions, Communication control, Liaison, man power management, duty arrangement at special occasions (Festivals/L.O./VIP/Mela/AD Ops)	02
8	Project handling	Short term task management (POI, SPOC Data, Major Technical Installations etc.)	04
9	Communication skills	Media brief reporting , Social Media - Brief messaging and event report writing.	04
10	Role of SRC	Record maintenance of service book, OB & compilation	02
11	Operating functional skills	(A) 1. General ability to receive, sending, cipher message code/decoding. 2. Computer typing skills at moderate speed. 3. E-mail message composition, message downloading, save records & mail forward operations. (B) Introduction to Radio Procedure 1. Familiarize with type of messages, section component of formal message. 2. General instructions regarding message writing. (use of priorities & securities) 3. Call signs, establishing communication, communication discipline. 4. Operating rules, Radio log, recording of message, H/O of charge during shift change. 5. DSR preparation & distribution. 6. Basic knowledge of communication security, handling of CSD/cipher documents. 7. Type of classified messages to encode for transmission. 8. Introduction to computer based automated Cipher system. 9. Security classification of classified message. 10. Security of classified files, papers, message and other materials. 11. Security of equipments/installation. 12. Importance of secrecy devices in communication security. 13. Communication procedure for classified message, prevention of Compromise. 14. Maintenance of records of destruction/disposal.	05


IV. Practical approach and innovation
Practical Training Module for Grade-II cum P.P. ASI(R) to SI(R)


S.No	Module Categories		Practical Topic	No. of Period (200)
1	Instruments	1.1	Radio test set - parameter testing & specifications.	04
		1.2	Specification & operation of various types of radio sets.	04
		1.3	Study of block diagram of VHF radio sets.	04
		1.4	Parameter testing of radio sets.	06
		1.5	Solar system- auto switch/PCB/MPPT charge controller/intelligent charge controller, Battery charging system.	10
2	Software uses	2.1	Working of GPS.	06
		2.2	To locate line of sight using radio mobile.	12
		2.3	Frequency programming in radio sets	10
3	Fault finding	3.1	General fault in radio sets.	16
		3.2	Tracing & fault finding in radio circuitry.	20
4	Demonstration / Visits	4.1	Study the connectivity of repeater with radio set.	06
		4.2	Introduction, operation of Dial- 100, Technical visit of Dial-100 control room/ CCTV control room/Trunking Room	12
		4.3	Operation & handling of U.A.V. – Exposure level introducing idea.	04
		4.4	Operation of VC system.	04
5	Fabrication	5.1	Elementary knowledge of light, Fan and power wiring.	02
		5.2	Earthing and cable jointing, graded fuse.	02
		5.3	Transistor, Transformer, Relay, Diode & Bridge testing.	02
6	UAV Handling	6.1	Demonstration of UAV flights.	04
		6.2	Legal instructions and related provisions in UAV operations.(active searching regarding related topics)	03
7	Communication network Installation	7.1	Installation of 60 ft. and 80 ft. Mast for VHF antenna.	06
		7.2	Installation temporary VHF/ HF/DMR radio set for VIP/VVIP duty.	04
		7.3	VHF networking.	04
		7.4	Basic installation & operation of CCTV, P.S. CCTV system, ANPR camera operation.	08
		7.5	Installation & operation of biometric.	04
8	Practical Demonstration	8.1	Cyber Security - Precautions to be taken while working on Internet/ using pen drive / Do's & Don'ts for E-mail.	04
		8.2	Integrated Control Room	02
		8.3	CCTNS	02
		8.4	ROIP – (A) General description ROIP interface box, software, installation and configuration. (B) Radio configuration.	04
		8.5	CUG Portal – Updation of database	02
		8.6	Installation & operation of MDT.	10
		8.7	Operation of net viewer	08
		8.8	Operation of Biometric attendance system(BAS)	02
9	Social Media Handling	9.1	Social media – Legal aspects and instructions of Information technology (IT), Precautions on handling of Internet. Brief messaging and summary report writing in 50-150 words.	06
		9.2	Active searching of advanced technical topics and its relevant presentation.	03



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 DSP(R) INDOOR TRNG.
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C.S. CHANDRAWAT
 SP (RADIO)
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 एच. एन. अहिर्वा
 पुलिस अधीक्षक (रेडिया)
 रेडियो मुख्या. भोपाल

निरीक्षक(रेडियो) का कार्य विवरण एवं उत्तरदायित्व

1. जिला कन्ट्रोल रूम/डायल-100/सीसीटीवी सर्विलेन्स/जिला रेडियो प्रभारी से संबंधित अन्य सभी कार्यों का ज्ञान।
2. एम.एस.वर्ड, एक्सेल, पावर पाइन्ट एवं कम्प्यूटर नेटवर्किंग का ज्ञान।
3. विशिष्ट एवं अति विशिष्ट व्यक्तियों एवं चुनाव ड्यूटी व अन्य महत्वपूर्ण आयोजनों के समय की जाने वाली संचार व्यवस्था का ज्ञान।
4. वरिष्ठ पुलिस अधिकारियों एवं प्रशासनिक अधिकारियों से समन्वय स्थापित करना।
5. पदानुसार निर्णय लेने की क्षमता, वरिष्ठ अधिकारियों से पत्र व्यवहार एवं दस्तावेजों का संधारण करने का ज्ञान।
6. निर्वाध रूप से संचार व्यवस्था बनाये रखने हेतु संचार उपकरणों का रिपेयरिंग, मेंटेनेन्स का पर्यवेक्षण कार्य।
7. अधीनस्थ स्टॉफ से समन्वय/समस्याओं का निदान एवं वरिष्ठ अधिकारियों को अवगत कराना।
8. कानून-व्यवस्था ड्यूटी एवं आपदा के समय संचार योजना व व्यवस्था लगाना।
9. प्राथमिक जांच, विभागीय जांच प्रक्रिया एवं प्रस्तुतकर्ता अधिकारी के दायित्वों का ज्ञान।
10. स्टाफ को व्यवहारिक प्रशिक्षण, कल्याणकारी गतिविधियों का संचालन, पर्यवेक्षण एवं प्रोत्साहन।
11. उप पुलिस अधीक्षक(रेडियो) के मूलभूत दायित्वों एवं कार्यों के कार्यकारी निर्वहन का ज्ञान।