

SCHEME & SYLLABUS OF EXAMINATION OF PART-I
PROGRAMMER

Part	Section	Subject/Syllabus	No. of questions	Maximum Marks	Qualifying Marks
Part-I			60	180	72
	Section 'A'	Reasoning/Quantitative Aptitude	20	60	
	Section 'B'	<ul style="list-style-type: none"> • General Knowledge & General Knowledge of Rajasthan: <ol style="list-style-type: none"> 1. Events of State, National and International importance 2. Geography and Natural Resources of India and Rajasthan 3. Agricultural, Social and economic development of India Rajasthan 4. Indian Medieval History, Indian struggle for Independence, and History of Rajasthan 5. Culture and heritage of India and Rajasthan • General Science: (upto class X) <ol style="list-style-type: none"> 1. Elements, Mixtures and Compounds 2. Physical and Chemical Changes; Oxidation and Reduction: Catalysis 3. Metals and Non-Metals 4. Acids, bases and Salts 5. Reflection of light and its laws, lenses, human eye, defects of vision and its correction 6. Electric current, Electric potential, Ohms law , electric cell and Electric motor 	30	90	

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		<p>7. Human Brain, hormones, human diseases and cure</p> <p>8. Economic importance of animals and plants</p> <p>9. Biomass, sources of energy, ecosystem, Mendel's Law of inheritance, chromosomes</p> <p>10. Human blood groups, blood transfusion, Deficiency diseases and cure</p> <ul style="list-style-type: none"> • Basic Computer Skills: <ol style="list-style-type: none"> 1. Introduction to Computers 2. Computer Systems 3. Uses of Computers 4. Introduction to the Internet & Search Engines, Internet Applications 5. Operating system, 6. MS Word Advance 7. Database Management System 8. MS Excel Advance 9. MS Power Point Basics 10. Microsoft Outlook-Basics 		
Section 'C'		<p>Language Comprehension</p> <ul style="list-style-type: none"> • Hindi <ol style="list-style-type: none"> 1. शब्द रचना: संधि एवं संधि विच्छेद, समास, उपसर्ग, प्रत्यय 2. शब्द प्रकार: तत्सम, तत्भव, अर्धतत्सम, देशज, विदेशी, संज्ञा, सर्वनाम, विशेषण, क्रिया, अव्यय 	10	30

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		<ol style="list-style-type: none"> 3. शब्द ज्ञान: पर्यायवाची, विलोम, शब्द युग्मो का अर्थभेद, वाक्यांश के लिए सार्थक शब्द, संश्लेषितभिन्नार्थक शब्द, समानार्थी शब्द, उपयुक्त शब्द चयन, संबंधवाची शब्दावली 4. शब्द शुद्धि 5. व्याकरणिक कोटियाँ: परसर्ग, लिंग, वचन, पुरुष, काल, वृत्ति, पक्ष, वाच्य 6. वाक्य रचना 7. वाक्य शुद्धि 8. विराम चिन्हों का प्रयोग 9. मुहावरे/ लोककित्या 10. पारिभाषिक शब्दावली: प्रशासनिक/ विविध <ul style="list-style-type: none"> • English <ol style="list-style-type: none"> 1. Use of articles and determiners 2. Tenses/ sequence of tenses 3. Active and passive voice 4. Direct and Indirect Narration 5. Use of Prepositions 6. Synonyms and antonyms 7. Comprehension of passage 8. Idioms and Phrases 9. Letter writing: Official, Demi-official. Circulars and Notices 		
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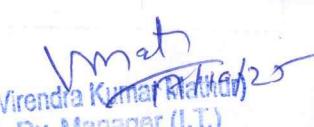
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SCHEME & SYLLABUS OF EXAMINATION OF PART-II

PROGRAMMER

Part	Section	Subject/Syllabus	No. of Questions	Maximum marks	Qualifying Marks
Part-II			90	270	108
	Section 'A'	<p>Computer Basics: Components of A Computer System – CPU, Mother board, Primary Storage Devices, Secondary Storage Devices, On-Line form Entry, direct data entry, Data base, Types of Computer input/Output PDA's, Computer hardware Basics</p> <p>Operating System: System Software, Operating System, Operating Systems for Larger Systems, their System Software, General Purpose Software/Utilities, Application Software, All type of Mobile OS</p> <p>Data Base Management System & Data Mining: Concepts related to Data, Data processing, File organizations, Data Base Management Systems, Types of Database, Database Structures, Data Base Components, Structure of DBMS, RDBMS, Structured Query Language and Other Query Language, Storage, Documentation and Program Library, Backup, and Recovery, Data Security, Internet, Data center.</p>	40	120	


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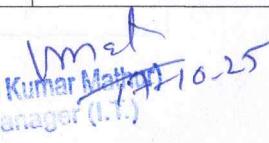
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		<p>Data Base Design: Conceptual data base design, Normalization Primitive and Composite data type, Concept of physical and logical database, data abstraction and data independence, data aggregation and Relational Algebra.</p> <p>Application Development using SQL: Host Language interface embedded SQL Programming, Stored procedures and triggers and views, Constraints assertions.</p> <p>Internal of RDBMS: Physical data organization in sequential, indexed random and hashed files. Inverted and multilist structures, B trees, B+ trees, Query Optimization, Join algorithm.</p> <p>Operation & Maintenance of RDBMS:</p> <p>Installing SQL, MS SQL, DB 2, MS Access, Managing Database Storage Structures, Administering User Security, Managing Schema Objects, Managing Undo Data, Configure undo retention, PL-SQL, MS SQL, DB 2, MS Access Database Security Configuring Network Environment, Performing Database Recover and Flashbacks, Configuring Recovery Managers, Monitoring and Managing Storage, Database Environment, client server database environment, internet database environment.</p> <p>Programming, Internet and Web Tools:</p> <p>Programming Language-DOT Net programming, Control structure, exception handing, web logic technologies and cloud computing. Debugging the Program, online Google</p>		
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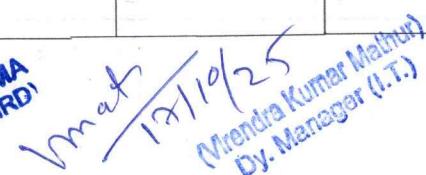
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		<p>and Excel sheets development, Static and Dynamic website development, PPT/Excel/Word advance uses, Concept of AI and machine learning.</p> <p>Object Oriented Programming and Design: Review of Abstraction, Objects and other basics, Encapsulation, Information hiding, Method, Signature, Classes and Instances, Polymorphism, Inheritance, Exceptions and Exception Handling with reference to object modeling. Coupling and Cohesion in object-oriented software. Object Oriented Design -Process, Exploration and Analysis.</p> <p>Basics of Java script, HTML, HTTP, Internet, Java as a tool for internet applications, Byte Code and its advantages.</p>			
	Section 'B'	<p>Data Communication and Computer Networks</p> <p>Computer Network Architecture, Circuit switching, packet And Message Switching, Network Structure. Physical Layer, Data Link Layer, Framing. Retransmission algorithms.</p> <p>Multiple access and Aloha. CSMA/CD and Ethernet. High Speed LANs and topologies. Broadcast routing and spanning trees.</p> <p>TCP/IP Stack. IP Networks and Internet. DNS and Firewalls. Intrusion Detection and Prevention.</p> <p>Transport layer and TCP/IP. Network Management and Interoperability.</p>	50	150	


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	<p>System Analysis and Design</p> <p>System concept: Definition and characteristics, elements and boundaries, types of system development lifecycle, recognition of needs, feasibility study, prototyping, role of system analyst.</p> <p>System planning and tools like DFD, data dictionary, decision trees, structured analysis and decision tables.</p> <p>IPO charts, structured walkthrough, input output form design, requirement and classification of forms, layout considerations form control, object-oriented Design Concepts and methods.</p> <p>Software Life Cycle, Software Engineering paradigms.</p> <p>System analysis: Feasibility study requirement analysis, Cost benefit analysis, Planning systems, Analysis tools and techniques.</p> <p>System Design: design fundamentals, Modular Design, Data and procedural design, object-oriented design.</p> <p>System Development: Code documentation, Program design paradigms. Efficiency Consideration.</p> <p>Verification, Validation and Testing: testing methods, Formal Program Verification, Testing Strategies.</p> <p>Software Maintenance: Maintenance Characteristics, Maintainability, Maintenance tasks and side effects.</p>		
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 M. R. K. Malhotra
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Note : Only those candidates, who have qualified the written examination, will be called for Proficiency test.

The number of candidates called for Proficiency Test would be three/five times the number of vacancies advertised for the post but in the said range although candidates who secure the same percentage of marks shall be included.

Proficiency Test	Subject	Duration	Maximum Marks	Qualifying Marks
	As per syllabus of written examination	3 Hours	100	40

Note : Final Merit List of qualified candidates shall be prepared on the basis of marks obtained in Written Examination and Proficiency Test.

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