

## Plan of Written Examination

All the aspirants are informed as under with respect to the written test to be conducted for the recruitment of **Clerk I.T.**

- (i) The Exam will be conducted in MCQ (Multiple Choice Questions) format. OMR sheets will be used for answering the questions.
- (ii) There will be negative marking. Each question carries 1 mark. **For every wrong answer, 1/4<sup>th</sup> mark would be deducted. The question(s) not attempted will receive no credit or discredit.**
- (iii) The test would be of 2 hours duration.
- iv) Pattern of the written competitive examination is as follows:-

Sr. No.	Topic	No. of Questions	Marks (Each Question carries 1 mark)	Type of Questions
1.	Questions from the Subject (Part A of Syllabus)	90	90	MCQs (Multiple Choice Questions)
2.	Questions from General Knowledge, English, Punjabi, Logical Reasoning and Mental ability (Part B of Syllabus)	30	30	
<b>Total</b>		<b>120</b>	<b>120</b>	

- v) Tentative syllabus for the written examination for the recruitment of **Clerk I.T.** is annexed at Annexure-1 and 2.

## Annexure-I

### **Part A-Subject Syllabus (Clerk I.T)**

**Fundamentals of Computer:** Basic of computers, network & Internet, email, use of office productivity tools like Word, spreadsheet & presentation,

**Operating System:** Structure and Architecture of Operating system, basic function. Types of operating system: multi-user, multitasking, parallel, real time, time sharing and distributed. Process Management: process, states, threads, pre-emptive & non-pre-emptive scheduling, Scheduling algorithm. Concurrency Control: Concurrency, synchronization & Deadlocks. Memory Management : Memory management requirements, memory partitioning, memory allocation, allocation strategies, concept of virtual memory, page replacement policies, & thrashing. I/O Management: I/O devices, disk scheduling, I/O Buffering, Inter Process Communication. Virtualization basics.

**DBMS:** DBMS, RDBMS, Characteristics of DBMS, Architecture of DBMS and Data Independence, CODD Rules, Data Modelling, ER Model, Relational Data model concepts and constraints, Keys-primary, foreign candidate etc., SQL- DDL, DML, DCL command. Queries and views, indexes & constraints, Normalization-1NF, 2NF, 3NF, 4NF, BCNF, 5NF. Transaction, concurrency control and recovery techniques. NoSQL databases.

**Computer Organization:** Digital Logic, Boolean algebra, K-Maps, Flip flops, combination circuit-adders, multiplexers, de-multiplexer, sequential circuit, Computer system, memories, IO organization, process organization, instruction format, control unit, multiprocessing and multi-core computers.

**Data Structure:** Data structure, time and space complexity, data types, link list and its operations like insert, delete etc. double & circular linked list and their operations, Stack & its operation (push and pop), infix to post fix conversion, infix/postfix evaluation, queues and their operation, array and its representation, sorting algorithms (selection/bubble/sort, insertion, quick, merge, shell, radix etc.), searching algorithm: linear, binary etc. Trees and their representation. Properties of trees, binary tree.

**Programming skills:** Basics of problem solving, providing solution to problem using flowchart, algorithm and pseudocode.

**C programming:** Basic of C, data types, variables and their scope, Storage classes, I/O operations, Operators, control structures, looping structures, Array, strings, Functions, pointers, Enum, struct, union, memory management, File handling.

**Data communication and computer Networks:** Basics of digital communication, Network architecture, physical layer, Medium access protocols, Data-link layer, Network layer, Transport layer and Application layer.

**Artificial Intelligence (AI):** Artificial Neural Networks (ANN), Genetic Algorithms (GA), Natural Language Processing, Knowledge Representation, Multi-Agent Systems

## Annexure-2

### Part B--General Knowledge, Punjabi, English, Logical Reasoning and Mental Ability.

Sr. No.	<i>Indicative Contents of Syllabus</i>	<i>Weightage (Approx.)</i>
1	<p><b>General Knowledge and Current affairs of National and International importance including:</b></p> <p>(i) Political issues,                      (ii) Environment issues,                      (iii) Current Affairs,                      (iv) Science and Technology,                      (v) Economic issues,                      (vi) History of India with special reference to Indian freedom struggle movement.                      (vii) Sports,                      (viii) Cinema and Literature.</p>	10
2	<p><b>Logical Reasoning &amp; Mental Ability:</b></p> <p>Verbal reasoning : Coding, Decoding, Analogy, Classification, Series, Direction sense test, relations, mathematical operations, time test, odd man out problems.</p> <p>Non Verbal reasoning : Series, Analogy and Classification.</p> <p>Basic numerical skills, Percentage, Number system, LCM and HCF, Ratio and Proportion, Number series, Average, Problems based on Ages, Profit &amp; Loss, Partnership and Mixture, Simple and Compound Interest, Work and Time, Time and Distance, Mensuration and Data Interpretation.</p>	10
3	<p><b>English:-</b></p> <p>Basic Grammar, Subject and Verb, Adjectives and Adverbs, Synonyms, Antonyms, One Word Substitution, Fill in the Blanks, Correction in Sentences, Idioms and their meanings, Spell Checks, Adjectives, Articles, Prepositions, Direct and Indirect Speech, Active and Passive Voice, Correction in Sentences, etc.</p>	5
4	<p><b>ਪੰਜਾਬੀ:-</b></p> <p>ਸ਼ੁੱਧ-ਅਸ਼ੁੱਧ, ਸ਼ਬਦਜੋੜ, ਅਗੇਤਰ ਅਤੇ ਪਿਛੇਤਰ,</p>	5

	<p>ਸਮਾਨਾਰਥਕ/ਵਿਰੋਧੀਸ਼ਬਦ, ਨਾਂਵ, ਪੜਨਾਂਵ ਅਤੇ ਕਿਰਿਆ ਦੀਆਂ ਕਿਸਮਾਂ ਤੇ ਸਹੀ ਵਰਤੋਂ, ਲਿੰਗ ਅਤੇ ਵਚਨ, ਪੰਜਾਬੀ ਅਖਾਣ ਤੇ ਮੁਹਾਵਰੇ, ਅੰਗਰੇਜ਼ੀ ਤੋਂ ਪੰਜਾਬੀ ਅਨੁਵਾਦ ਅਤੇ ਬਹੁਤੇ ਸ਼ਬਦਾਂ ਦੀ ਥਾਂ ਇੱਕ ਸ਼ਬਦ ਆਦਿ।</p>	
	<p><b>Maximum Marks</b></p>	<p>30</p>

Note:-a) The distribution of marks/question in each section is indicative. It may vary slightly.

b) The syllabus is broadly classified as above but may vary to some extent.

