Plan of Written Examination

*All the aspirants are informed as under with respect to the written test to be conducted for the recruitment for the post of **Technical Assistant Group-B (Advt. No. 05 of 2023)** :-*

1. *The Exam will be conducted in MCQ (Multiple Choice Questions) format. OMR sheet will be used for answering the questions.*

2. *The Exam would be of 2 hours duration.*

3. *The Exam will consist of two parts (Part A and Part B) as follows:-*

Part	Topic	No. of Questions	Marks (Each Question carries 1 mark)	Type of Questions
A	Questions from General Knowledge and Current Affairs, Punjab History and Culture, Logical Reasoning and Mental ability, Punjabi, English, ICT, (Annexure-1)	40	40	MCQs (Multiple Choice Questions)
B	Questions from the Subject (Annexure-2)	80	80	MCQs (Multiple Choice Questions)
Total		**120**	**120**	

4. ***There will be negative marking. Each question carries 1 mark. For every wrong answer, 1/4th mark i.e. 0.25 mark would be deducted. The question(s) not attempted will receive no credit or discredit.***

5. *Tentative syllabus for the written examination for the recruitment of **Technical Assistant Group-B** is annexed at Annexure-1 and Annexure-2.*

Annexure - 1

Part A - General Knowledge, *Punjab History and Culture,* Logical Reasoning Mental Ability, Punjabi, English and ICT.

Sr. No.	Indicative Contents of Syllabus	Weightage (Approx.)
1.	**General Knowledge and Current affairs of National and International importance including:** *(i)* *Polity 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.* *(ix)* *Geography*	10
2.	**Punjab History and Culture:-** *Physical features of Punjab and its ancient history. Social, religious and economic life in Punjab. Development of Language & literature and Arts in Punjab, Social and culture of Punjab during Afgan/Mughal Rule, Bhakti Movement, Sufism, Teachings/History of Sikh Gurus and Saints in Punjab. Adi Granth, Sikh Rulers, Freedom movements of Punjab.*	5
3.	**Logical Reasoning & Mental Ability:** *(i)* *Logical reasoning, analytical and mental ability.(05 Marks)* *(ii)* *Basic numerical skills, numbers, magnitudes, percentage, numerical relation appreciation. (03 Marks)* *(iii)* *Data analysis, Graphic presentation charts, tables, spreadsheets. (02 Marks)*	10
4.	*ਪੰਜਾਬੀ:-* ਸੁੱਧ-ਅਸੁੱਧ, ਸ਼ਬਦਜੋੜ, ਅਗੇਤਰ ਅਤੇ ਪਿਛੇਤਰ, ਸਮਾਨਾਰਥਕ/ਵਿਰੋਧੀਸ਼ਬਦ, ਨਾਂਵ, ਪੜਨਾਂਵ ਅਤੇ ਕਿਰਿਆ ਦੀਆਂ ਕਿਸਮਾਂ ਤੇ ਸਹੀ ਵਰਤੋਂ, ਲਿੰਗ ਅਤੇ ਵਚਨ, ਪੰਜਾਬੀ ਅਖਾਣ ਤੇ ਮੁਹਾਵਰੇ, ਅੰਗਰੇਜੀ ਤੋਂ ਪੰਜਾਬੀ ਅਨੁਵਾਦ ਅਤੇ ਬਹੁਤੇ ਸ਼ਬਦਾਂ ਦੀ ਥਾਂ ਇੱਕ ਸ਼ਬਦ ਆਦਿ।	5
5.	**English:-** *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.*	5
6.	**ICT:-** *Basics of computers, Network & Internet, Use of office productivity tools Word, Excel, Spreadsheet & PowerPoint.*	5
	Maximum Marks	**40**

Annexure – 2
Part B - Subject Syllabus for the post of Technical Assistant

Collection of Data: Primary data; designing a questionnaire and a schedule. Secondary Data; major sources including some government publications. Concept of a statistical population and samples from a population, quantitative and qualitative data, discrete and continuous data. Scales of measurements; nominal, ordinal, interval and ratio.

Presentation of Data: Frequency distribution, diagrammatical representation, graphical representation, histogram, frequency polygon, frequency curves and Ogives.

Analysis of Quantitative Data: univariate data; concepts of central tendency, dispersion, skewness and kurtosis. Measures of central tendency; dispersion; skewness and kurtosis including those based on quartiles and moments. Bivariate data: correlation, regression, coefficient of correlation and regression with properties. Principle of least squares. Multivariate data: simple, partial, multiple correlation, multiple regression, correlation ratio, rank correlation, intra class correlation. Categorical data: consistency of data, association of attributes and their measures. Multivariate normal distribution, principal components and canonical correlations in population.

Sampling concepts: need of sampling, sources of errors in surveys, ordered, unordered sampling designs, procedures of selecting a sample, estimators and its desirable properties, simple random sampling with and without replacement. Notion of Probability: random experiment, sample space, axiom of probability, equally likely outcome problems.

Random Variables: concept, discrete and continuous random variables, probability density and mass functions, cumulative distributive function and its properties, expectations, mean, variance, conditional expectation and Bayes theorem. Generating functions: probability & moment generating function, characteristic function. Laws of large numbers, central limit theorems and their applications.

Discrete probability distributions: Bernoulli, binomial, geometric, Poisson. Continuous probability distributions: Uniform, exponential, Gamma, beta, normal. Concept of statistical hypothesis: simple, composite, null and alternate hypothesis, critical region, two types of errors, level of significance, power of test, Neyman

Pearson notion of testing hypothesis, likelihood ratio test and its optimum properties, confidence intervals.

Tests of Significance: large and small sample tests, Sampling and Sampling Distributions: Assumptions and applications of t-test, z-test, F-test, Chi-square test statistics, large sample tests for mean and proportions.

Linear models: concepts of fixed, random and mixed effect models, assumptions and applications. Basic principles of design of experiment: randomization, replication and local control, ANOVA: one way and two way models.

Non Parametric Tests; Chi square, Run Test and Sign Test, Kolmogorov Smirnov test, Wilcoxon signed ranked test, Mann-Whitney test, Kruskal Wallis test.

Time series: meaning, components, methods of trend measurement: quadratic, exponential and modified exponential. Seasonal Indices by methods of simple average, ratio to moving average and ratio to trend.

Index Numbers: concept, price relative, quantity relative and value relative, Laspeyer's, Paasche's and Fisher's index numbers, base shifting and splicing of index numbers, problems in the construction and limitation of index numbers, test of an ideal index number.