SYLLABUS

TIER-I OF THE EXAMINATION :

A. General Intelligence & Reasoning :

It would include questions of both verbal and non-verbal type. This component may include questions on analogies, similarities and differences, space visualization, spatial orientation, problem solving, analysis, judgement, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, syllogistic reasoning etc. The topics are, Semantic Analogy, Symbolic/Number Analogy, Figural Analogy, Semantic Classification, Symbolic/Number Classification, Figural Classification, Semantic Series, Number Series, Figural Series, Problem Solving, Word Building, Coding & de-coding, Numerical Operations, symbolic Operations, Trends, Space Orientation, Space Visualization, Venn Diagrams, Drawing inferences, Punched hole/pattern –folding & un-folding, Figural Pattern – folding and completion, Indexing, Address matching, Date & city matching, Classification of centre codes/roll numbers, Small & Capital letters/numbers coding, decoding and classification, Embedded Figures, Critical thinking, Emotional Intelligence, Social Intelligence, Other sub-topics, if any.

B. General Awareness :

Questions in this component will be aimed at testing the candidates general awareness of the environment around him and its application to society. Questions will also be designed to test knowledge of current events and of such matters of every day observations and experience in their scientific aspect as may be expected of any educated person. The test will also include questions relating to India and its neighbouring countries especially pertaining History, Culture, Geography, Economic Scene, General Policy & Scientific Research.

C. Quantitative Aptitude :

The questions will be designed to test the ability of appropriate use of numbers and number sense of the candidate. The scope of the test will be computation of whole numbers, decimals ,fractions and relationships between numbers, Percentage. Ratio & Proportion,Square roots, Averages, Interest, Profit and Loss, Discount, Partnership Business, Mixture and Alligation, Time and distance, Time & Work, Basic algebraic identities of School Algebra & Elementary surds, Graphs of Linear Equations, Triangle and its various kinds of centres, Congruence and similarity of triangles, Circle and its chords, tangents, angles subtended by chords of a circle, common tangents to two or more circles, Triangle, Quadrilaterals, Regular Polygons , Circle, Right Prism, Right Circular Cone, Right Circular Cylinder, Sphere, Hemispheres, Rectangular Parallelepiped, Regular Right Pyramid with triangular or square base, Trigonometric ratio, Degree and Radian Measures, Standard Identities, Complementary angles, Heights and Distances, Histogram, Frequency polygon, Bar diagram & Pie chart

D. English Comprehension :

Candidates' ability to understand correct English, his basic comprehension and writing ability, etc. would be tested.

TIER-II OF THE EXAMINATION :

Paper-I :

Quantitative Ability :

The questions will be designed to test the ability of appropriate use of numbers and number sense of the candidate. The scope of the test will be the computation
of whole numbers, decimals ,fractions and relationships between numbers, Percentage. Ratio & Proportion,Square roots, Averages, Interest, Profit and Loss, Discount, Partnership Business, Mixture and Alligation, Time and distance, Time & Work, Basic algebraic identities of School Algebra & Elementary surds, Graphs of Linear Equations, Triangle and its various kinds of centres, Congruence and similarity of triangles, Circle and its chords, tangents, angles subtended by chords of a circle, common tangents to two or more circles, Triangle, Quadrilaterals, Regular Polygons , Circle, Right Prism, Right Circular Cone, Right Circular Cylinder, Sphere, Hemispheres, Rectangular Parallelepiped, Regular Right Pyramid with triangular or square base, Trigonometric ratio, Degree and Radian Measures, Standard Identities, Complementary angles, Heights and Distances, Histogram, Frequency polygon, Bar diagram & Pie chart

Paper-II :

English Language & Comprehsion :

Questions in this components will be designed to test the candidate's understanding and knowledge of English Language and will be based on spot the error, fill in the blanks, synonyms, antonyms, spelling/detecting mis-spelt words, idioms & phrases, one word substitution, improvement of sentences, active/passive voice of verbs, conversion into direct/indirect narration, shuffling of sentence parts, shuffling of sentences in a passage, cloze passage & comprehension passage.

Paper-III :

Statistics for Investigator Grade-II,

Collection Classification and Presentation of Statistical Data – Primary and Secondary data, Methods of data collection; Tabulation of data; Graphs and charts; Frequency distributions; Diagrammatic presentation of frequency distributions.

Measures of Central Tendency- Common measures of central tendency – mean median and mode; Partition values- quartiles, deciles, percentiles.

Measures of Dispersion- Common measures dispersion – range, quartile deviations, mean deviation and standard deviation; Measures of relative dispersion.

Moments, Skewness and Kurtosis – Different types of moments and their relationship; meaning of skewness and kurtosis; different measures of skewness and kurtosis.

Correlation and Regression – Scatter diagram; simple correlation coefficient; simple regression lines; Spearman's rank correlation; Measures of association of attributes; Multiple regression; Multiple and partial correlation (For three variables only).

Probability Theory – Meaning of probability; Different definitions of probability; Conditional probability; Compound probability; Independent events; Bayes' theorem.

Random Variable and Probability Distributions – Random variable; Probability functions; Expectation and Variance of a random variable; Higher moments of a random variable; Binomial , Poisson, Normal and Exponential distributions; Joint distribution of two random variable (discrete).

Sampling Theory – Concept of population and sample; Parameter and statistic, Sampling and non-sampling errors; Probability and non-probability sampling techniques(simple random sampling, stratified sampling, multistage sampling, multiphase sampling, cluster sampling, systematic sampling, purposive sampling, convenience sampling and quota sampling); Sampling distribution(statement only); Sample size decisions.

Statistical Inference - Point estimation and interval estimation, Properties of a good estimator, Methods of estimation (Moments method, Maximum likelihood method, Least squares method), Testing of hypothesis, Basic concept of testing, Small sample and large sample tests, Tests based on Z, t, Chi-square and F statistic, Confidence intervals.

Analysis of Variance - Analysis of one-way classified data and two-way classified data.

Time Series Analysis - Components of time series, Determinations of trend component by different methods, Measurement of seasonal variation by different methods.

Index Numbers - Meaning of Index Numbers, Problems in the construction of index numbers, Types of index number, Different formulae, Base shifting and splicing of index numbers, Cost of living Index Numbers, Uses of Index Numbers.