FURTHER DETAILS REGARDING MAIN TOPICS OF PROGRAMME NO.7/2013 (Item No.9)

RESEARCH OFFICER

STATE PLANNING BOARD.

(CATEGORY NO.106/2011)

Part I. Economics

1.***National Income***: Concept and Measurement: Concepts of National Income-lnter-relationshi$_{ps}$ among different Concepts-Methods of Measuring National Income-National Income as a Measure of Economic Welfare-National Income Accounting-Social Accounting-input-output Accounting-Flow of Funds Accounts.

2.***Economic planning***: Types of Planning-Economic Planning in India-Objectives Achievements and Failures of Planning in India- 12th Five Year Plan-Mobilisation of Resources for Indian Plans-The strategy of Indian Planning- Plan Models in the Indian Five Year Plans-Poverty and Unemployment-Economic Inequalities in India-Measures for Reducing Poverty, Unemployment and Income Inequalities.

3. ***Financial Economics***: Financial System- Meaning - Financial Intermediation-Non Banking Financial Intermediaries(NBFI) - Financial Markets- Indian Financial system-Constitutional changes since 1991 -Financial Sector Reforms in India- Reserve Bank of India- Promotional Role of RBI -Monetary Policy-Instruments of Credit Control Monetary and Credit Policy of the Reserve Bank of India

4. ***Fiscal Federalism***: Concept of Federal Finance-Principles of Federal Finance-Fiscal Imbalance- Vertical and Horizontal Imbalance-Methods of Inter governmental Resource Transfer-Fiscal Federalism in India-Centre-state Financial Relations in India-Finance Commission in India-Recommendations of the 13 th Finance Commission .

5. ***Budget and Budgetary Control***: Budget-Meaning and definition- Types or Classification of Budget-Zero Based Budgeting-Modern Classification of Budget-Performance Budgeting in India –Planning, Programming and Budgeting System (PPBS)-The Budgetary Process in India-Execution of the Budget-Budgetary deficits Budgetary Control- Meaning and definition & objectives and Methods-Steps in Budget Control-Budgeting and Budgetary Control as a tool of Management.

6. ***Public Administration:*** Basic concepts and principles of Public Administration – Evolution of the concept and its present status – New Public Administration – Public Choice Approach – Challenges of Liberalisation, Privatisation and Globalisation – Good Governance – Concept and Application _ New Public Management – The concepts of Accountability and control – Legislative, Executive and Judicial Control –Citizen and Administration – Role of Civil Society, Peoples Participation and Right to Information.

Part II. Statistics

1.. Sampling theory

Indian and State statistical systems, Types data-: Primary and Secondary data. Collection of primary data- Concept of sampling- sampling vs complete enumeration methods, sampling and non sampling errors, Advantages of sampling over complete enumeration method. Planning of sample surveys, sampling from a finite population, Preparation of questionnaire, Methods of sampling-probability sampling methods: Simple Random Sampling:- selection of a simple random sample - estimation of parameters in SRS - choice of sample size, Stratified Random Sampling:- advantages - equal, proportional and Neyman's optimum allocation and estimation of sample parameters, Systematic sampling, Cluster sampling, PPS sampling, double sampling, Multi-Stage Sampling. Non-random (probability) sampling methods- Judgment sampling, convenience sampling, Quota sampling.

2. Basic statistical methods

Introduction: Definition of statistics, Classification and tabulation of data, Diagrammatic representation of Data: One dimensional diagram, two dimensional diagrams, Pictograms and Cartograms. Graphical Presentation of data: Histogram, Frequency Polygon, frequency curve, Cumulative Frequency Curves, Measures of Central Tendency-simple arithmetic mean, median, mode, geometric mean, harmonic mean, weighted arithmetic mean. Dispersion: Measures of Dispersion-range, quartile deviation, mean deviation and standard deviation. Relative measures of dispersion-Coefficient of Variation, Skewness, Kurtosis and their measures. Correlation: Scatter Diagram, Correlation Coefficient- simple, partial and multiple correlation coefficients, Rank Correlation Coefficient, Regression analysis, method of least squares, estimation of Simple linear Regression and its applications , Interpretation of Regression Coefficient, Coefficient of determination, fitting of multiple linear regression, and nonlinear regressions

3. Probability theory

Probability: Classical definition, Axiomatic definition, Basic concepts, Theorems in probability: Addition and multiplication theorems, Conditional Probability, condition for independence, Bayes theorem. Univariate Random variables: Discrete and Continuous random variables and Probability distribution functions, Cumulative Distribution function, Mathematical Expectation. Theoretical probability distributions: Binomial, Poisson and normal distributions. Sampling Distributions- Student's t distribution, Chi-square distribution, Snedecor's F-distribution (Basic concepts only)

4. Statistical inference

Concepts of point estimation and Interval estimation-Confidence level, Confidence Interval for means, proportions and variance. Tests of significance- null and alternate hypothesis, type I error, type -II error, level of significance, One tailed test and two tailed test, Critical region and power of a test. Large sample test(test based on standard normal Distribution) - one sample mean, two sample mean, one sample proportion, two sample proportion, test of significance of two correlation coefficients etc. Small sample test(t-test)- sample means- independent and related, test of significance of correlation coefficient. Test of significance of two sample variances- test based on 'F' distribution, Test based on chi-square distribution:- goodness of fit and independence of attributes. Analysis of Variance -One way ANOVA, Two way ANOVA, Elementary non-parametric tests.

5. Time series analysis

(i) Time series Analysis: -Components of Time series, Measurement of Trend. Measuring Trend by Logarithms, Exponential Trends, Growth Curves.(ii) Index Numbers: Methods of construction of index numbers- unweighted index numbers, Weighted Index numbers:-Laspeyres Method, Paasche's Method, Fisher's ideal method and Kelly's method, Consumer Price Index numbers. Test of adequacy of index numbers-Unit test, Time reversal test, Factor reversal test and circular test (iii) Vital Statistics: Methods of Obtaining Vital statistics, Measurement of Fertility- Crude Birth rate, Specific Fertility rate, Crude Death rate, Standardized Death rates, Infant Mortality rate, Maternal Mortality Rate, Reproduction rate, Rate of Net Migration.

Part III. Mathematics

Quantitative Aptitude

Ratio, proportion and variation, L.C.M and H.C.F, laws of exponents, square roots and cube roots, logarithms, percentages, simple and compound interest, mixtures, averages, simple and weighted arithmetic averages, time and distance, time and work, area of triangle, parallelogram and circle, volume and surface area of cubes, cones, cylinders and spheres.

Algebra

Set theory - Sets and operations on sets. Mathematical induction - The principle of mathematical induction, simple applications. Logarithms - laws of logarithms including change of base, common logarithms, simple applications of logarithms. Number system - real numbers and complex numbers. Quadratic equations. Sequence and series - sequences and examples of finite and infinite sequences, Arithmetic progression(AP), Geometric progression(GP), Harmonic progression(HP). Permutation and combination, Binomial theorem. Matrices - concept, notation, order, types of matrices, addition, multiplication, concept of elementary row and column operations, inverse matrix. Determinants - properties of determinants, minors and cofactors, adjoint and inverse of a square matrix, consistency and inconsistency and solving system of linear equation.

Calculus

Relations and functions - reflexive, symmetric, transitive and equivalence relation, into and onto functions, one-one into and one-one onto functions, composition of functions and invertible functions. Limit and continuity, differentiability, derivative of different types of functions and second order derivatives. Applications of derivatives - rate of change, increasing and decreasing functions, tangents and normals, approximation, maxima and minima and simple problems. Integrals - integration of a variety of functions by substitution, by partial fractions and by parts, definite integrals. Applications of integrals - applications in finding the area under simple curves, areas of circles, parabolas and ellipse, area between the curves. Differential equations - order and degree, general and particular solutions of a differential equation. Functions of two variables and partial derivatives.

Trigonometry

Degree measure and radian measure of positive and negative angle, relation between degree and radian, trigonometric functions, trigonometric functions of sum and difference of angles, trigonometric functions of multiples and submultiples of angles, inverse trigonometric functions.

Coordinate geometry

Cartesian system of rectangular coordinates, straight lines, circles and conic sections. Vectors - vectors and scalars, direction cosines/ratios of vectors, types of vectors. Scalar and vector products of vectors.

Part IV. Commerce

1.Basics of Accounting

Journal - Subsidiary books - Ledger - Preparation of accounts - Trial balance -Trading, Profit and loss account and balance sheet.

2 Financial Management

Introduction - Meaning - Definition -Importance - Nature - Scope - Components -Objectives - Principles - Functions - Liquidity Vs profitability

3 Financial Statement Analysis and Interpretation

Meaning and types of Financial Statements - Analysis and interpretation -Techniques of Financial Analysis - Limitations of Financial Analysis

4 Ratio Analysis

Meaning and classification of ratios - Profitability ratio - Coverage ratio -Turnover ratio - Financial ratios, Categories of ratios, Advantages and limitations of ratios - Critical analysis of ratios

5 Fund flow Analysis

Meaning - Uses - Fund flow and Income Statements - Preparation of Fund flow statement - Statement of changes in Financial position

6 Cash Flow Analysis

Meaning - Preparation cash flow statement - difference between cash flow analysis and funds flow analysis - utility of cash flow analysis - Accounting Standard 3 (Revised) Cash flow statement - Cash forecasts.

7 Management Information Systems

Definition of MIS - Need for a database - utilization of models - Characteristics of MIS - Sub systems of MIS - Executive Information Systems - Information resource Management - Role of MIS - Data information - features of information - types of information - data reduction - Quality of information - Value of information

NOTE: - It may be noted that apart from the topics detailed above, questions from other topics prescribed for the educational qualification of the post may also appear in the question paper. There is no undertaking that all the topics above may be covered in the question paper.