Appendix-III

SCHEME OF SELECTION FOR OFFICERS IN GR B (DR)-DEPR /DSIM:

A. Officers in Grade 'B' (DR) – DEPR-2023- Job Requirement, Scheme of Selection and syllabus

(i) Job Requirements: Primarily to undertake economic analysis and research and contribute to policy formulation, apart from compilation of data relating to select sectors.

(ii) Scheme of Selection:

Selection will be through Online/ Written Examination (WE) and interview. There are 4 papers for the Examination. In Phase - I of the examination, there will be Paper - I Objective Type (on Economics) and Paper- II Descriptive Type (On English). In Phase - II, there will be Paper - I Descriptive Type (on Economics) and Paper - II Descriptive Type (on Economics).

Phase	Name of Paper	Duration	Maximum Marks
Phase - I	Paper - I Objective Type (on Economics)	120 minutes	100
	Paper - II English - Descriptive (To be typed with help of keyboard)	120 minutes	100
Phase - II	Paper - I Descriptive Type (on Economics) (Question paper displayed on computer, answers to be written on paper)	120 minutes	100
	Paper - II Descriptive Type (on Economics) (Question paper displayed on computer, answers to be written on paper)	120 minutes	100
	Total		400

Other detailed information regarding the examination will be given in an Information Handout, which will be made available for the candidates to download along with the Admission letter for examination from the RBI website.

Candidates have to secure minimum marks as may be prescribed by the Board.

Candidates, who secure minimum aggregate marks in Paper I & II of Phase - I, as prescribed, will be shortlisted for Phase II of the examination. The minimum aggregate cut-off marks for being shortlisted for Phase - II of the examination will be decided by the Board in relation to the number of vacancies.

Roll No. of the candidates shortlisted for Phase - II examination will be published on RBI web-site, tentatively within a week after Phase - I.

(iii) Phase II - Paper-I/ Paper II Descriptive Type (on Economics) Written Examination (WE): The Phase II - Paper-I/ Paper II Descriptive Type (on Economics) will be conducted on September 02, 2023 only for the candidates who are shortlisted on the basis of results of Phase I. The Phase I – Paper-I/Paper-II and The Phase II - Paper-I / Paper II Descriptive Type (on Economics) examination will be in shifts. Candidates are required to appear for all shifts. Separate Admission Letters will be issued for each shift. The time-table for Phase I – Paper-I/Paper-II and Phase II - Paper-I / Paper II Descriptive Type (on Economics) will be intimated to the candidates concerned along with Admission Letter for Phase I & Phase - II.

(iv) Question papers for 'WE' will be set in Hindi and in English (except Paper-II on English). Answers for Phase II - Paper-I / Paper II Descriptive Type (on Economics) may be written either in Hindi or

English. The Phase I - Paper-II will have to be answered in English only. Candidates may opt for interview in Hindi or English.

(v) The number of candidates to be called for interview will be decided by the Board.

(vi) Final selection will be on the basis of performance in the 'Online / WE' in Phase I (Paper - I & Paper - II), Phase II (Paper - I & Paper - II) and interview taken together. Interview will be of 75 marks. Candidate may opt for interview either in Hindi or English.

(vii) Candidate shall be required to undergo Personality Assessment conducted by the Bank before appearing for the Interview, no marks will be allotted for the same, and will not form part of the final selection criteria.

(viii) Syllabi:
Phase - I- Paper I Objective Type (on Economics)

(1) Microeconomics (Theories of consumer's demand; Production; Market Structures and Pricing; Distribution; and Welfare Economics)

(2) Macro Economics (Theories of Employment, Output and Inflation; Monetary Economics; IS-LM Model; Schools of Economic Thought)

(3) International Economics (Theories of International Trade; Balance of Payments; Exchange Rate Models)

(4) Theories of Economic Growth and Development (Classical neo-classical approaches to economic growth and major theories of economic development)

(5) Public Finance (Theories of taxation and public expenditure and Public Debt Management)

(6) Environmental Economics (Green GDP, Environmental Valuation, Environmental policy instruments)

(7) Quantitative Methods in Economics (Mathematical and Statistical Methods for Economics, Ordinary Least Square Regression)

(8) Current developments in Indian Economy (Growth, inflation, poverty, unemployment, financial sector developments, external sector developments, fiscal developments, agriculture, industry, infrastructure, and services)

Phase - I - Paper-II Descriptive Type (on English)

The paper on English shall be framed in a manner to assess the writing skills including expression and understanding of the topic.

Phase - II - Paper - I Descriptive Type (on Economics) (Question paper displayed on computer, answers to be written on paper)

Microeconomic Module

- Consumer Theory: Cardinal and Marginal Utility Analysis, Consumer Surplus, Indifference Curve Analysis, Price, Income and Substitution Effects, Game Theory

- Production Theory: Forms of Production function; Laws of Returns to Scale; Partial Equilibrium *Vs* General Equilibrium Analysis

- Market Theory: Pricing under different market structures

- Distribution Theories: Ricardo, Marx, Kalecki and Kaldor

- Welfare Economics: Pareto Optimality, Schools of Welfare Thought including Arrow, Coase and Sen

Macroeconomic Module

- National Income Accounting: Various methods for measurement of National Income

- Theory of employment and Output: Classical and Neo-classical approaches, Keynesian theory of Employment and output, Post-Keynesian developments, Business Cycles

- Inflation: Types of Inflation, Philip's curve, Taylor's Rule, Lucas Critique

- Money and Banking: Quantity theory of Money, Neutrality of money, IS - LM Model and AD-AS Models, Money Multiplier, Monetary Policy – Scope, Objectives and instruments, Inflation targeting

- Theories of Economic Growth and Development: Theories of growth, Classical and neo-classical approaches, Theories of Economic Development

- International trade and Balance of payments: Theories of international trade, Determination of exchange rates, Impossible Trinity

- Public Finance: Theories of taxation, Theories of public expenditure, Theories of public debt management

(Equal weightage will be given to Microeconomic and Macroeconomic modules)

Phase - II - Paper-II Descriptive Type (on Economics) (Question paper displayed on computer, answers to be written on paper)

Module on Quantitative Methods in Economics

- Mathematical Methods in Economics: Differentiation and Integration, Optimisation, Sets, Matrices, Linear algebra and Linear programming

- Statistical Methods in Economics: Measures of central tendency and dispersions, Probability, Time series, Index numbers.

- Econometrics and advanced Applications: Regression analysis, Panel data econometrics, Time Series econometrics, Basics of Bayesian Econometrics, Basic application of Artificial Intelligence/ Machine Learning

Module on Indian Economy – Policy and Trends

- Fiscal policy in India: Evolution, scope and limitations, current trends

- Monetary Policy in India: Evolution, Functions of the Reserve Bank of India, Monetary-Fiscal coordination, Inflation targeting, Operating framework of Monetary Policy, Current trends

- Banking and financial sector development in India: Banks and other constituents of Indian financial markets and related developments, Current trends

- Inflation in India: Trends and drivers

- External sector developments in India: Exchange rate management, external debt, Balance of payments, Current trends

- Sectoral and other developments in India: Agriculture, industry, services and social sector-related developments

(Equal weightage will be given to Quantitative Economics and Indian Economy-related modules)

ix) Suggested reading material:

For Phase - II (Paper I - Micro and Macroeconomics Modules)

• Microeconomics
   - Hal R. Varian; Intermediate Microeconomics: A Modern Approach, 9th edition, 2019. The workbook, Workouts in Intermediate Microeconomics, by Hal R. Varian and Theodore C. Bergstrom may be used for problems.
   - A. Koutsoyiannis; Modern Microeconomics, International Edition.
   - C.E. Ferguson and J.P. Gould; Microeconomic Theory.

• Macroeconomics
   - Dornbusch, Fischer and Startz; Macroeconomics, McGraw Hill, 13th edition, 2018.
   - Olivier Blanchard; Macroeconomics, Pearson Education, Inc., 8th edition, 2021.
   - Brian Snowdon and Howard R. Vane; Modern Macroeconomics: Its Origin, Development and Current State, Edward Elgar Publishing Ltd, 2005.
     .
• International Economics
   - Paul R. Krugman, Maurice Obstfeld and Marc Melitz; International Economics: Theory and Policy, Pearson Education, 12th edition, 2022.
   - Dominick Salvatore; International Economics: Trade and Finance, Wiley, 11th edition, 2014.

• Public Finance
   - Richard A. Musgrave and Peggy B. Musgrave; Public Finance in Theory and Practice, McGraw Hill, 5th edition, 2017.
   - Stiglitz, J.E. and Jay K. Rosengard Economics of the Public Sector, W.W. Norton & Company, 4th edition, 2015.

• Growth and Development
   - A.P. Thirlwall; Economics of Development: Theory and Evidence, Macmillan, 9th edition, 2011.
   - Debraj Ray, Development Economics, Oxford University Press, 2009.
   - Basu, K., Analytical Development Economics, The Less Developed Economy Revisited, MIT Press, 2003

For Phase - II (Paper II - Modules on Quantitative Methods in Economics and Indian Economy)

• Mathematical Methods in Economics
   - Simon, Carl P. and Lawrence Blume; Mathematics for Economists, W. W. Norton & Company, Inc., 1994.
   - Kevin Wainwright and Alpha C. Chiang; Fundamental Methods of Mathematical Economics, 4th edition, McGraw-Hill, 2005

• Econometrics
   - D. N. Gujarati and D.C. Porter; Essentials of Econometrics, McGraw-Hill, 4th edition,

International Edition, 2010.

- Wooldridge, J.M; Introductory Econometrics: A Modern Approach, Cengage Learning, 7th edition, 2022.

- Statistics
  - N. G. Das; Statistical Methods, McGraw-Hill, 2008.
  - Miller, I., Miller, M.; John E. Freund's Mathematical Statistics with Applications, 8th edition, Pearson, 2021.
- Indian Economy
  - Economic Survey, Government of India, Various Issues
  - India Development Report, Oxford University Press, Various Issues.
  - Uma Kapila, Indian Economy since Independence, Academic Foundation, Various Issues.
  - RBI Annual Report – Last two years.
  - RBI Report on Trends and Progress of Banking in India – Last two years.
  - Monetary Policy Reports – Last two years.
  - Financial Stability Report – Last two years

B. Officers in Grade 'B' (DR) – DSIM- 2023- Job Requirement, Scheme of Selection and syllabus

(i) **Job Requirements**: To undertake collection, compilation, analysis and interpretation of data on banking, corporate and external sectors; Modelling and forecasting of inflation, growth and other important macroeconomics indicators; Analytical studies involving statistical/econometric models in the operational areas of interest to the Reserve Bank; Planning, designing and organizing sample surveys; maintaining technology-driven centralized reporting system and Data warehouse for information management /dissemination; and Development of methodology for the measurement and estimation of variables and improvement of the database of various sectors of the economy. Application of Data Science/Artificial Intelligence/Machine Learning techniques to derive insights from large volume data.

(ii) Scheme of Selection:

Selection will be through Online/ Written Examination (WE) and interview. There are 3 papers for the Examination. Paper I Objective Type (on Statistics**)** to be held on **July 16, 2023** and Paper II & III will be held on **August 19, 2023**–(date to be confirmed in admit cards).

Name of Paper	Duration	Maximum Marks
Paper-I Objective Type (on Statistics)	120 minutes	100
Paper-II Descriptive Type (on Statistics) (Question paper displayed on computer, answers to be written on paper)	180 minutes	100
Paper-III English – Descriptive (To be typed with help of keyboard)	90 minutes	100
Total		**300**

A composite time of 120 minutes will be given for answering Paper I. Other detailed information regarding the examination will be given in an Information Handout, which will be made available

for the candidates to download along with the Admission letter for examination from the RBI website.

Candidates have to secure minimum marks as may be prescribed by the Board.

Candidates, who secure minimum aggregate marks in Paper I, as prescribed, will be shortlisted for Paper-II/ Paper III of the examination based on the aggregate marks obtained in Paper-I. The minimum aggregate cut-off marks for being shortlisted for Paper II and Paper III of the examination will be decided by the Board in relation to the number of vacancies. Roll No. of the candidates shortlisted for Paper II and Paper III examination will be published on RBI web-site, tentatively within a week after Paper -I examination.

(iii) Paper – II and III Online/Written Examination: The Paper II and Paper III Examination will be conducted on **August 19, 2023** only for the candidates who are shortlisted on the basis of results of Paper-I. The Paper II and Paper III examination will be in shifts. Candidates are required to appear for all shifts. Separate Admission Letters will be issued for each shift. The time-table for Paper II and Paper III will be intimated to the candidates concerned along with Admission Letter for Paper II and Paper III.

(iv) Question papers for 'WE' will be set in Hindi and in English (except Paper-III on English). Answers for Paper-II may be written either in Hindi or English. Paper-III will have to be answered in English only. Candidates may opt for interview in Hindi or English.

v) The number of candidates to be called for interview will be decided by the Board.

vi) Final selection will be on the basis of performance in the 'Online / WE' (Paper I, II and III) and interview taken together. Interview will be of 75 marks. Candidate may opt for interview either in Hindi or English.

vii)Candidate shall be required to undergo Personality Assessment conducted by the Bank before appearing for the Interview, no marks will be allotted for the same, and will not form part of the final selection criteria.

Syllabi: Standard of papers would be that of Master's Degree examination of any Central University in India.

Paper-I: Questions would cover Probability: Definition of Probability, Standard distribution, Large and small sample theory, Analysis of Variance, Estimation, Testing of Hypotheses, Multivariate analysis and Stochastic Processes.

Paper-II: Questions would cover (i) Probability and Sampling, (ii) Linear Models and Economic Statistics, (iii) Statistical Inference: Estimation, Testing of hypothesis and Non-parametric Test, (iv) Stochastic Processes, (v) Multivariate analysis, (vi) Econometrics and time series, (vii) Statistical computing; and (viii) Data Science, Artificial Intelligence and Machine Learning Techniques. There will be sufficient choice for candidates to attempt the required number of questions from any three or more of the above eight groups.

Paper-III: English: The paper on English shall be framed in a manner to assess the writing skills including expression and understanding of the topic.

Suggested reading material:

For Paper I and Paper II

▪ **Theory of Probability and Probability Distributions**
- Rohatgi, V. K. and Saleh, A.K. Md. E. (2005). An Introduction to Probability and Statistics
- Goon, A.M., Gupta, M.K. and Dasgupta. B. (1985). An Outline of Statistical Theory Vol-I & II
- Sukhatme, P.V., Sukhatme, B.V., Sukhatme, S. and Asok, C. (1984). Sampling Theory of Surveys with Applications
- S. C. Gupta, V. K. Kapoor (2000). Fundamentals of Mathematical Statistics
- W.G. Cochran (1977). Sampling Techniques

▪ **Linear Models and Economic Statistics**
- P.G. Hoel, S.C. Port and C.J. Stone (1971). Introduction to Statistical Theory
- A.M. Mood, F.A. Graybill and D.C. Boes (1974). Introduction to Theory of Statistics
- R. G. D. Allen (1975). Index Numbers in Theory and Practice

▪ **Statistical Inference**
- Kale, B.K. (1999). A First Course on Parametric Inference
- Rao, C.R. (1973). Linear Statistical Inference and Its Applications
- Bartoszynski, R. and Bugaj, M.N. (2007). Probability and Statistical Inference
- Gibbons, J.D. and Chakraborti, S. (1992). Nonparametric Statistical Inference

▪ **Stochastic Processes**
- Bhat, B.R. (2000). Stochastic Models- Analysis and Applications
- Prabhu, N.U. (2007). Stochastic Processes: Basic Theory and its Applications
- J. Medhi (2009). Stochastic Process

▪ **Multivariate Analysis**
- Anderson, T.W. (2003). An Introduction to Multivariate Statistical Analysis
- Arnold, Steven F. (1981). The Theory of Linear Models and Multivariate Analysis
- Giri, N.C. (1977). Multivariate Statistical Inference, Academic Press
- Alvin C. Rencher (2012). Methods of Multivariate Analysis

▪ **Econometrics and Time Series**
- Johnston, J. (1984). Econometric Methods
- James H. Stock and Mark W. Watson (2019). Introduction to Econometrics
- J.D. Hamilton (1994). Time Series Analysis
- William H. Greene (2018). Econometric Analysis

▪ **Statistical Computing and Data Science, Artificial Intelligence and Machine Learning Techniques**
- Sheldon M. Ross (2012). Simulation
- Trevor Hastie, Robert Tibshirani, Jerome Friedman (2009). The Elements of Statistical Learning, Data Mining, Inference, and Prediction, Second Edition
- Charu C. Aggarwal (2018). Neural Networks and Deep Learning

- Roger D. Peng: Advanced Statistical Computing
- William J. Kennedy, Jr. and James E. Gentle: Statistical Computing

C. Manner of conduct of examinations for GR B (DR)-DEPR /DSIM:

DEPR :

(i) The examination will be conducted on two days i.e. Phase I (Paper I & II) (Online Examination) on **July 16, 2023** and Phase II (Paper I & II) (Online / Written Examination), will be held separately on **September 02, 2023** (date to be confirmed in admit cards).

(ii) Phase I - Paper I - Objective Type (on Economics) will be conducted online and comprise multiple choice questions. Paper II - Descriptive Type (on English) to be typed with help of keyboard.

(iii) Phase II - Paper I & II will be a descriptive Type (on Economics) pen / paper based examination where the questions will be displayed on computer screen, answers to be written on paper.

DSIM :

(i) The examination will be conducted on two days i.e. Paper I on **July 16, 2023** and Paper II & III will be held separately on **August 19, 2023** (date to be confirmed in admit cards).

(ii) Paper - I (Objective type on Statistics) will be conducted online and comprise multiple choice questions.

(iii) Paper - II (on Statistics) will be a descriptive type pen/paper based examination where the questions will be displayed on computer screen, answers to be written on paper.

(iv) Paper –III (English) will be of descriptive type where the candidates will be expected to type out answers on a computer.

The Board reserves the right to modify the exam dates and time entirely at its discretion.