Annexure

Syllabus for Paper 2 of Phase I & Phase II in General Stream
(Common Syllabus for both phases)

A. Commerce & Accountancy

a) Accounting as a financial information system;
b) Accounting Standards with specific reference to Accounting for Depreciation, Inventories, Revenue Recognition, Fixed Assets, Foreign Exchange Transactions, Investments.
c) Cash Flow Statement, Fund flow statement, Financial statement analysis; Ratio analysis;
d) Accounting for Share Capital Transactions including Bonus Shares, Right Shares.
e) Employees Stock Option and Buy-Back of Securities.
f) Preparation and Presentation of Company Final Accounts.

B. Management

a) Management: its nature and scope; The Management Processes; Planning, Organization, Staffing, Directing and Controlling;
b) The Role of a Manager in an Organization. Leadership: The Tasks of a Leader;
c) Leadership Styles; Leadership Theories; A successful Leader versus an effective Leader.
d) Human Resource Development: Concept of HRD; Goals of HRD;
e) Motivation, Morale and Incentives: Theories of Motivation; How Managers Motivate; Concept of Morale; Factors determining morale; Role of Incentives in Building up Morale.
f) Communication: Steps in the Communication Process; Communication Channels; Oral versus Written Communication; Verbal versus non-verbal Communication; upward, downward and lateral communication; Barriers to Communication, Role of Information Technology.

C. Finance

1) **Financial System**
   a) Role and Functions of Regulatory bodies in Financial Sector.

2) **Financial Markets**
   a) Primary and Secondary Markets (Forex, Money, Bond, Equity, etc.), functions, instruments, recent developments.

3) **General Topics**
   a) Basics of Derivatives: Forward, Futures and Swap
   b) Recent Developments in the Financial Sector
   c) Financial Inclusion- use of technology
   d) Alternate source of finance, private and social cost-benefit, Public-Private Partnership
   e) Direct and Indirect taxes; Non-tax sources of Revenue, GST, Finance Commission, Fiscal Policy, Fiscal Responsibility and Budget Management Act (FRBM),
   f) Inflation: Definition, trends, estimates, consequences, and remedies (control): WPI, CPI - components and trends.

D. Costing

1. Overview of Cost and Management Accounting - Introduction to Cost and Management Accounting, Objectives and Scope of Cost and Management Accounting.
2. Methods of Costing - Single Output/ Unit Costing, Job Costing, Batch Costing, Contract Costing, Process/ Operation Costing, Costing of Service Sectors.
3. Basics of Cost Control and Analysis - (i) Standard Costing, (ii) Marginal Costing, (iii) Budget and Budgetary Control.
4. Lean System and Innovation:-
   a) Introduction to Lean System
   b) Just-in-Time (JIT)
   c) Kaizen Costing

d) 5 Ss
e) Total Productive Maintenance (TPM)
f) Cellular Manufacturing/ One-Piece Flow Production Systems
g) Six Sigma (SS)
h) Introduction to Process Innovation and Business Process Re-engineering (BPR).

E. Companies Act

The Companies Act, 2013 **–** Specific reference to Chapter III, Chapter IV, Chapter VIII, Chapter X, Chapter XI, Chapter XII and Chapter XXVII.

F. Economics

a) Demand and Supply, Market Structures, National Income: Concepts and Measurement, Classical & Keynesian Approach Determination of output and employment, Consumption Function, Investment Function, Multiplier and Accelerator, Demand and Supply for Money , IS – LM, Inflation and Phillips Curve, Business Cycles
b) Balance of Payments, Foreign Exchange Markets, Inflation, Monetary and Fiscal Policy, Non-banking Financial Institutions.

Specialized Subject (Legal / Information Technology / Research / Official Language Streams / Engineering (Electrical) / Engineering (Civil)):

Syllabus for Paper 2 of Phase I & Phase II in Legal Stream

Phase – I		
Sl. No.	**Subject**	**Weightage***
1	Constitution of India (Preamble, Part I, Part III, Part IV, Part IVA, Part V, Part VI, Part VIII, Part IXA, Part IXB, Part XI)	20%
2	Contract Law – • Indian Contract Act, 1872; • Sale of Goods Act, 1930; • Indian Partnership Act, 1932; • Specific Relief Act, 1963.	25%
3	Code of Civil Procedure, 1908 (Part I, Part II, Part III, Part IV, Part V, Part VII, Schedule I)	25%
4	Transfer of Property Act, 1882 (Chapter III, Chapter IV, Chapter V)	
5	Arbitration and Conciliation Act, 1996 (Part I)	
6	The Limitation Act, 1963	
7	Administrative Law	20%
8	Jurisprudence and Interpretation of Statutes	
9	Important Latin terms and maxims	
10	Law of Torts and Consumer Protection Act, 2019	10%

***** Weightages are indicative only

Phase – II		
Sl. No.	**Subject**	**Weightage***
1	Criminal Law – • Bharatiya Nyaya Sanhita, 2023 (Chapter I, Chapter II, Chapter III, Chapter IV, Chapter VII, Chapter XII, Chapter XIV, Chapter XVII, Chapter XVIII, Chapter XIX; • Bharatiya Nagarik Suraksha Sanhita, 2023.	30%
2	Law of Evidence – Bharatiya Sakshya Adhiniyam, 2023	

3	Corporate Laws – • Companies Act, 2013 (Chapter I, Chapter II, Chapter III, Chapter IV, Chapter V, Chapter VI, Chapter VII, Chapter VIII, Chapter IX, Chapter X, Chapter XI, Chapter XII, Chapter XIII, Chapter XIV, Chapter XV, Chapter XVI, Chapter XVIII, Chapter XX, Chapter XXVII, Chapter XXVIII); • Limited Liability Partnership Act, 2008; • Insolvency and Bankruptcy Code, 2016 (Part I, Part II).	30%
4	Securities Laws – • Securities Contracts (Regulation) Act, 1956; • Securities and Exchange Board of India Act, 1992; • Depositories Act, 1996; • Securities and Exchange Board of India (Prohibition of Fraudulent and Unfair Trade Practices relating to Securities Market) Regulations, 2003; • Securities and Exchange Board of India (Substantial Acquisition of Shares and Takeovers) Regulations, 2011; • Securities and Exchange Board of India (Prohibition of Insider Trading) Regulations, 2015;	40%

***** Weightages are indicative only

Syllabus for Paper 2 of Phase I in Information Technology Stream

Phase I			
Sr. No.	**Topic**	**Details**	**Weightage***
1.	Database Concepts	ER-model. Relational model: relational algebra, tuple calculus, Integrity constraints, normal forms. File organization, indexing (e.g., B and B+ trees), Transactions and concurrency control.	10
2.	SQL Queries	Select, view, truncate, delete, update, alter, Inner join, different types of outer joins,, use of aggregate functions, Union, intersection, except, in and exist clauses, nested queries	10
3.	Programming Concepts (Java /C C++)	Program control (iteration, recursion, Functions), Scope of variables, Binding of variables & functions, Parameter passing, Functional and Logic Programming, OOPS Concepts, Inheritance, Class and object, Constructors, Functions, Exception Handling	30
4.	Data Analytics Languages (Python / R)	Regex, Slicing, Data reshaping, Dataframes, Dictionaries and Sets, File Management, Classes and Functions, Data Mining, Lists, Importing and exporting data, charts and graphs	10
5.	Algorithms for problem solving	Tree and graph traversals, Connected components, Spanning trees, Shortest paths; hashing, Sorting, Searching; Design techniques (Greedy, Dynamic Programming, Divide-and-conquer)	10
6.	Networking Concepts	ISO/OSI stack, LAN Technologies (Ethernet, Token ring), TCP/UDP, IP, Basic concepts of switches, gateways, and routers, Application layer protocols (DNS, SMTP, POP, FTP, HTTP), Firewalls	10
7.	Information & Cyber Security Concepts	Cyber Attacks, Software Development Security, Network security, Authentication, CIA - Confidentiality, Integrity and Availability, Network Audit, Systems Audit	10
8.	Data warehousing	Data Extraction, Data Cleaning, Data Transformation, Data Loading, Metadata, Data Cube, Data Mart, Data Models,	5
9.	Shell Programming	Shell Scripting Basics, Shell Variables, Shell Script Arguments, If Statement, Loop, Return, Basic UNIX commands	5
Total			**100**

***** Weightages are indicative only

Syllabus for Paper 2 of Phase II in Information Technology Stream

S.No.	Topic	Concepts	Weightage*
1	Algorithms	Sorting, Searching, Greedy Algorithms, Dynamic Programming, Backtracking, Divide and Conquer, Pattern Searching	30
2	Data Structure	Array, Linked List, Stack, Queue, Binary Tree, Indexing, Binary Search Tree, Heap, Hashing, Matrix, JSON Objects	40
3	String Manipulation	Length, Substring, Regex, Search	10
4	Object Oriented Programming	Abstraction, Encapsulation, Polymorphism, Inheritance	20
Total			**100**

***** Weightages are indicative only

Syllabus for Paper 2 of Phase I in Research Stream

1. **Economics:** Demand and Supply, Market Structures, National Income, Determination of output and employment, Investment Function, Multiplier and Accelerator, Demand and Supply for Money , IS – LM, Inflation and Phillips Curve, Business Cycles, Inflation, Monetary and Fiscal Policy, Non-banking Financial Institutions.

2. **Public Economics:** Public Goods, Tax & Non-Tax Revenue, Direct & Indirect Taxes, Progressive and non-Progressive Taxation, Incidence and Effects of Taxation, Public expenditure , Public Debt, Public Budget and Budget Multiplier.

3. **Statistics and Econometrics:** Measures of Central tendency & dispersions, Correlation, Sampling methods, Sampling Distribution, Statistical Inferences, Hypothesis testing, Regression Analysis.

4. **International Economics:** Balance of Payments, Foreign Exchange Markets, Role of International Financial Institutions: BIS, IOSCO, IMF & World Bank.

5. **Financial Markets**: Asymmetric Information, Market Model, Market Efficiency, Primary Market, Secondary Market, Commodity Markets, Mutual Funds, Stock Exchanges, Depositories, Clearing Corporations, Credit Rating Agencies, Corporate Debt Market. Forwards, Futures, Options, Hedging, Speculation and Arbitrage.

Syllabus for Paper 2 of Phase II in Research Stream

Subject	Details	Weightage*
Economics	**Economics:** Demand and Supply, Market Structures, National Income, Determination of output and employment, Investment Function, Multiplier and Accelerator, Demand and Supply for Money , IS – LM, Inflation and Phillips Curve, Business Cycles, Inflation, Monetary and Fiscal Policy, Non-banking Financial Institutions. **Public Economics:** Public Goods, Tax & Non-Tax Revenue, Direct & Indirect Taxes, Progressive and non-Progressive Taxation, Incidence and Effects of Taxation, Public expenditure , Public Debt, Public Budget and Budget Multiplier. **International Economics:** Balance of Payments, Foreign Exchange Markets, Role of International Financial Institutions: BIS, IOSCO, IMF & World Bank.	25%
Financial Markets	**Financial Markets**: Asymmetric Information, Market Model, Market Efficiency, Primary Market, Secondary Market, Commodity Markets, Mutual Funds, Stock Exchanges, Depositories, Clearing Corporations, Credit Rating Agencies, Corporate Debt Market. Forwards, Futures, Options, Hedging, Speculation and Arbitrage.	50%
Statistics	**Statistics and Econometrics:** Measures of Central tendency & dispersions, Correlation, Sampling methods, Sampling Distribution, Statistical Inferences, Hypothesis testing, Regression Analysis.	25%

***** Weightages are indicative only

Syllabus for Paper 2 of Phase I & Phase II in Official Language Stream
(Common Syllabus for both phases)

1. भारत सरकार की राजभाषा नीति (Official Language Policy of the Govt. of India) से संबंधित प्रश्न
2. हिन्दी से अंग्रेजी अनुवाद [शब्द / वाक्यांश / वाक्य / Terms / Phrases / Sentences]
3. अंग्रेजी से हिन्दी अनुवाद [शब्द / वाक्यांश / वाक्य / Terms / Phrases / Sentences]
4. हिन्दी से अंग्रेजी - विधिक शब्दावली (Legal Terminology)
5. अंग्रेजी से हिन्दी - विधिक शब्दावली (Legal Terminology)
6. हिन्दी से अंग्रेजी – प्रशासनिक / बैंकिंग / पूंजी बाजार संबंधी शब्दावली (Administrative / Banking / Capital Market Terminology)
7. अंग्रेजी से हिन्दी - प्रशासनिक / बैंकिंग / पूंजी बाजार संबंधी शब्दावली (Administrative / Banking / Capital Market Terminology)

Syllabus for Paper 2 of Phase I & Phase II in Engineering (Electrical) Stream
(Common Syllabus for both phases)

1. **Electrical Materials**: Electrical Engineering Materials, crystal structures and defects, ceramic materials, insulating materials, magnetic materials – basics, properties and applications; ferrities, ferro-magnetic materials and components; basics of solid state physics, conductors; Photo-conductivity; Basics of Nano materials and Superconductors.
2. **Electric Circuits and Fields**: Circuit elements, network graph, KCL, KVL, Node and Mesh analysis, ideal current and voltage sources, Thevenin's, Norton's, Superposition and Maximum Power Transfer theorems, transient response of DC and AC networks, Sinusoidal steady state analysis, basic filter concepts, two-port networks, three phase circuits, Magnetically coupled circuits, Gauss Theorem, electric field and potential due to point, line, plane and spherical charge distributions, Ampere's and Biot-Savart's laws; inductance, dielectrics, capacitance; Maxwell's equations.
3. **Electrical and Electronic Measurements:** Principles of measurement, accuracy, precision and standards; Bridges and potentiometers; moving coil, moving iron, dynamometer and induction type instruments, measurement of voltage, current, power, energy and power factor, instrument transformers, digital voltmeters and multi-meters, phase, time and frequency measurement, Q-meters, oscilloscopes, potentiometric recorders, error analysis, Basics of sensors, Transducers, basics of data acquisition systems.
4. **Computer Fundamentals:** Number systems, Boolean algebra, arithmetic functions, Basic Architecture, Central Processing Unit, I/O and Memory Organisation; peripheral devices, data representation and programming, basics of Operating system and networking, virtual memory, file systems; Elements of programming languages, typical examples.
5. **Basic Electronics Engineering:** Basics of Semiconductor diodes and transistors and characteristics, Junction and field effect transistors (BJT, FET and MOSFETS), different types of transistor amplifiers, equivalent circuits and frequency response; oscillators and other circuits, feedback amplifiers.
6. **Analog and Digital Electronics:** Operational amplifiers – characteristics and applications, combinational and sequential logic circuits, multiplexers, multi-vibrators, sample and hold circuits, A/D and D/A converters, basics of filter circuits and applications, simple active filters; Microprocessor basics- interfaces and applications, basics of linear integrated circuits; Analog communication basics, Modulation and de-modulation, noise and bandwidth, transmitters and receivers, signal to noise ratio, digital communication basics, sampling, quantizing, coding, frequency and time domain multiplexing, power line carrier communication systems.
7. **Systems and Signal Processing:** Representation of continuous and discrete-time signals, shifting and scaling operations, linear, time-invariant and causal systems, Fourier series representation of continuous periodic

signals, sampling theorem, Fourier and Laplace transforms, Z transforms, Discrete Fourier transform, FFT, linear convolution, discrete cosine transform, FIR filter, IIR filter, bilinear transformation.

8. **Control Systems:** Principles of feedback, transfer function, block diagrams and signal flow graphs, steady-state errors, transforms and their applications; Routh-hurwitz criterion, Nyquist techniques, Bode plots, root loci, lag, lead and lead-lag compensation, stability analysis, transient and frequency response analysis, state space model, state transition matrix, controllability and observability, linear state variable feedback, PID and industrial controllers.

9. **Electrical Machines:** Single phase transformers, three phase transformers - connections, parallel operation, auto-transformer, energy conversion principles, DC machines - types, windings, generator characteristics, armature reaction and commutation, starting and speed control of motors, Induction motors - principles, types, performance characteristics, starting and speed control, Synchronous machines - performance, regulation, parallel operation of generators, motor starting, characteristics and applications, servo and stepper motors.

10. **Power Systems:** Basic power generation concepts, steam, gas and water turbines, transmission line models and performance, cable performance, insulation, corona and radio interference, power factor correction, symmetrical components, fault analysis, principles of protection systems, basics of solid state relays and digital protection; Circuit breakers, Radial and ring-main distribution systems, Matrix representation of power systems, load flow analysis, voltage control and economic operation, System stability concepts, Swing curves and equal area criterion. HVDC transmission and FACTS concepts, Concepts of power system dynamics, distributed generation, solar and wind power, smart grid concepts, environmental implications, fundamentals of power economics.

11. **Power Electronics and Drives:** Semiconductor power diodes, transistors, thyristors, triacs, GTOs, MOSFETs and IGBTs - static characteristics and principles of operation, triggering circuits, phase control rectifiers, bridge converters - fully controlled and half controlled, principles of choppers and inverters, basis concepts of adjustable speed dc and ac drives, DC-DC switched mode converters, DC-AC switched mode converters, resonant converters, high frequency inductors and transformers, power supplies.

Syllabus for Paper 2 of Phase I & Phase II in Engineering (Civil) Stream
(Common Syllabus for both phases)

1. **Building Materials:** Stone, Lime, Glass, Plastics, Steel, FRP, Ceramics, Aluminium, Fly Ash, Basic Admixtures, Timber, Bricks and Aggregates: Classification, properties and selection criteria; Cement: Types, Composition, Properties, Uses, Specifications and various Tests; Lime & Cement Mortars and Concrete: Properties and various Tests; Design of Concrete Mixes: Proportioning of aggregates and methods of mix design.

2. **Solid Mechanics:** Elastic constants, Stress, plane stress, Strains, plane strain, Mohr's circle of stress and strain, Elastic theories of failure, Principal Stresses, Bending, Shear and Torsion.

3. **Structural Analysis:** Basics of strength of materials, Types of stresses and strains, Bending moments and shear force, concept of bending and shear stresses; Analysis of determinate and indeterminate structures; Trusses, beams, plane frames; Rolling loads, Influence Lines, Unit load method & other methods; Free and Forced vibrations of single degree and multi degree freedom system; Suspended Cables; Concepts and use of Computer Aided Design.

4. **Design of Steel Structures:** Principles of Working Stress methods, Design of tension and compression members, Design of beams and beam column connections, built-up sections, Girders, Industrial roofs, Principles of Ultimate load design.

5. **Design of Concrete and Masonry structures:** Limit state design for bending, shear, axial compression and combined forces; Design of beams, Slabs, Lintels, Foundations, Retaining walls, Tanks, Staircases; Principles of pre-stressed concrete design including materials and methods; Earthquake resistant design of structures; Design of Masonry Structure.

6. **Construction Practice, Planning and Management:** Construction - Planning, Equipment, Site investigation and Management including Estimation with latest project management tools and network analysis for different

Types of works; Analysis of Rates of various types of works; Tendering Process and Contract Management, Quality Control, Productivity, Operation Cost; Land acquisition; Labour safety and welfare.

7. Flow of Fluids, Hydraulic Machines and Hydro Power:

a) **Fluid Mechanics, Open Channel Flow, Pipe Flow:** Fluid properties; Dimensional Analysis and Modelling; Fluid dynamics including flow kinematics and measurements; Flow net; Viscosity, Boundary layer and control, Drag, Lift, Principles in open channel flow, Flow controls. Hydraulic jump; Surges; Pipe networks.

b) **Hydraulic Machines and Hydro power:** Various pumps, Air vessels, Hydraulic turbines – types, classifications & performance parameters; Power house – classification and layout, storage, pondage, control of supply.

8. Hydrology and Water Resources Engineering: Hydrological cycle, Ground water hydrology, Well hydrology and related data analysis; Streams and their gauging; River morphology; Flood, drought and their management; Capacity of Reservoirs. Water Resources Engineering: Multipurpose uses of Water, River basins and their potential; Irrigation systems, water demand assessment; Resources - storages and their yields; Water logging, canal and drainage design, Gravity dams, falls, weirs, Energy dissipaters, barrage Distribution works, Cross drainage works and headworks and their design; Concepts in canal design, construction & maintenance; River training, measurement and analysis of rainfall.

9. Environmental Engineering:

a) **Water Supply Engineering:** Sources, Estimation, quality standards and testing of water and their treatment; Rural, Institutional and industrial water supply; Physical, chemical and biological characteristics and sources of water, Pollutants in water and its effects, Estimation of water demand; Drinking water Standards, Water Treatment Plants, Water distribution networks.

b) **Waste Water Engineering:** Planning & design of domestic waste water, sewage collection and disposal; Plumbing Systems. Components and layout of sewerage system; Planning & design of Domestic Waste-water disposal system; Sludge management including treatment, disposal and re-use of treated effluents; Industrial waste waters and Effluent Treatment Plants including institutional and industrial sewage management.

c) **Solid Waste Management:** Sources & classification of solid wastes along with planning & design of its management system; Disposal system, Beneficial aspects of wastes and Utilization by Civil Engineers.

d) **Air, Noise pollution and Ecology:** Concepts & general methodology.

10. Geo-technical Engineering and Foundation Engineering:

a) **Geo-technical Engineering:** Soil exploration - planning & methods, Properties of soil, classification, various tests and inter-relationships; Permeability & Seepage, Compressibility, consolidation and Shearing resistance, Earth pressure theories and stress distribution in soil; Properties and uses of geo-synthetics.

b) **Foundation Engineering:** Types of foundations & selection criteria, bearing capacity, settlement analysis, design and testing of shallow & deep foundations; Slope stability analysis, Earthen embankments, Dams and Earth retaining structures: types, analysis and design, Principles of ground modifications.

11. Surveying and Geology:

a) **Surveying:** Classification of surveys, various methodologies, instruments & analysis of measurement of distances, elevation and directions; Field astronomy, Global Positioning System; Map preparation; Photogrammetry; Remote sensing concepts; Survey Layout for culverts, canals, bridges, road/railway alignment and buildings, Setting out of Curves.

b) **Geology:** Basic knowledge of Engineering geology & its application in projects.

12. Transportation Engineering:

a) **Highways:** Planning & construction methodology, Alignment and geometric design; Traffic Surveys and Controls; Principles of Flexible and Rigid pavements design.

b) **Tunneling:** Alignment, methods of construction, disposal of muck, drainage, lighting and ventilation.

c) **Railways Systems:** Terminology, Planning, designs and maintenance practices; track modernization.

d) **Harbours:** Terminology, layouts and planning. Airports – Layout, planning & design.

Paper 1 of Phase II (For All Streams):- English Writing Skills

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

Appendix-I

Certificate for person with specified disability covered under the definition of Section 2 (s) of the RPwD Act, 2016 but not covered under the definition of Section 2(r) of the said Act, i.e. persons having less than 40% disability and having difficulty in writing

This is to certify that, we have examined Mr/Ms/Mrs ..... (name of the candidate), S/o /D/o ....., a resident of .....(Vill/PO/PS/District/State), aged ..... yrs, a person with ..... (nature of disability/condition), and to state that he/she has limitation which hampers his/her writing capability owing to his/her above condition. He/she requires support of scribe for writing the examination.

2. The above candidate uses aids and assistive device such as prosthetics & orthotics, hearing aid (name to be specified) which is /are essential for the candidate to appear at the examination with the assistance of scribe.

3. This certificate is issued only for the purpose of appearing in written examinations conducted by recruitment agencies as well as academic institutions and is valid upto _____ (it is valid for maximum period of six months or less as may be certified by the medical authority)

Signature of medical authority

(Signature & Name)	(Signature & Name)	(Signature & Name)	(Signature & Name)	(Signature & Name)
Orthopedic / PMR specialist	Clinical Psychologist/ Rehabilitation Psychologist/Psychiatrist / Special Educator	Neurologist (if available)	Occupational therapist (if available)	Other Expert, as nominated by the Chairperson (if any)
(Signature & Name)				
Chief Medical Officer/Civil Surgeon/Chief District Medical Officer.....Chairperson				

Name of Government Hospital/Health Care Centre with Seal

Place:

Date: