

SYLLABUS FOR DEPARTMENTAL SELECTION FROM NON-EXECUTIVE TO EXECUTIVE CADRE IN VARIOUS DISCIPLINES (INTERNAL NOTIFICATION DATED 8.3.2010)

I. Pursuant to CIL Notification No.559 dated 8.3.2010 for selection from non-executive to executive cadre in various disciplines, the syllabus for Paper-I (General) & Paper-II (Technical) are given below as under:

Paper-I i.e. General Paper – Common for all disciplines

Paper-II i.e.. Technical Paper in following Disciplines:

Sl.No.	Discipline
1	E&M,
2	Excvn.
3	System
4	Legal
5	Land & Revenue
6	Welfare/ Personnel
7	Security
8	Drilling
9	Secretarial including Secretarial(OL)
10	Rajbhasha
11	Sales & Marketing
12	Civil
13	Materials Management

However, the syllabus for paper-II in E&T and PR Disciplines will be intimated shortly

II. The written examination may be scheduled during August 2011

**COMMON SYLLABUS FOR QUALIFYING EXAMINATION FOR SELECTION FROM
NON-EXECUTIVE TO EXECUTIVE CADRE FOR DIFFERENT DISCIPLINES.**

Paper – I

ORGANIZATIONAL PROFILE, FINANCE AND STRATEGIC INITIATIVES

1. ORGANIZATIONAL PROFILE :

- a) Coal Industry in India – A Retrospect, Nationalization of Coal Mines
- b) Strategic Relevance of Coal and Coal India; Organizational Structure of CIL.
- c) Vision, Mission and Objectives of Coal India
- d) Coal Production – Past, Present and Future (1989-2017)
- e) Trend of Productivity (UG, OC and Overall), Trend of raw coal production vis-à-vis reduction in manpower since 1975-76, Trend of Coal off take in major sectors, industry wise consumption pattern of Coal, Fuel wise share of coal in electricity generation;

2. FINANCIAL PERFORMANCE OF CIL (LAST THREE YEARS) :

- a) Highlights of Financial Performance of CIL, Constituents of Cost of Production.
- b) Sales (Gross), Gross Profit, Net Worth, PT and PAT of CIL
- c) Coal Sale System

I. PRODUCT PROFILE

1. PRODUCT :

- a) Categorization of Coal and Coke, Location of major coalfields, coal reserves and its quality, State wise share of coal reserves in India.
- b) Coal demand Vs Coal production, Deficit fulfillment measures.

2. METHODS AND TECHNOLOGIES OF COAL MINING-BASIC CONCEPTS :

- a) Underground Mining Methods, Bord and Pillar; Long wall Mining Methods; Intermediate Mining Technology; Mass Production Technology.
- b) Opencast Mining Methods; Opencast with dumper-Shovel combinations - production, productivity, off-take, Opencast with Surface Miner.

3. MINING EQUIPMENT:

- a) Types of equipment for Opencast and Underground Coal Mines and their usage
- b) Types of equipment for Washeries and CHPs and their uses
- c) Introduction of Coal Exploration – Role of CMPDI

- d) Introduction to Safety and Rescue gadgets and apparel

II. RULES OF CONDUCT, WAGES AND EMPLOYEE WELFARE

1. GUIDING RULES OF CONDUCT FOR NON EXECUTIVES & EXECUTIVES

- a) Model Standing Order
- b) JBCCI
- c) Common Coal Cadre
- d) **CDA Rules** – Duties and obligation of executives, Meaning of misconduct
- e) **Disciplines** – nature of Penalties, Disciplinary Authority, Authority to Institute Proceedings, Procedure for imposing Major Penalties.
- f) **Appeals** – Review of the case, Service of Orders, Notices etc.

2. EMPLOYEES WAGES, WELFARE AND SOCIAL SECURITY SCHEMES :

- a) Wage Settlement under NCWA-VIII
- b) Grade wise scale of pay of Executives of CIL
- c) TA/DA/LTC, Medical Reimbursement and HRA Rules
- d) Leave Rules for executives and non-executives
- e) Housing, Water Supply, Educational Institutions, Medical facilities
- f) Pension under CMPS 1998
- g) Income Tax liabilities of a salaried employee

IV. IMPORTANT STATUTES AND POLICIES CONCERNING COAL INDIA

- a) The Mines Act 1952 and Rules 1955, the Coal Mines Regulations 1957
- b) The Land Acquisition Act 1894, The Forest Conservation Act 1980, The Environment Act 1986
- c) Right to Information Act, 2005
- d) Guidelines on Corporate Social Responsibility for Central Public Sector Enterprises 2010, Coal India R & R Policy 2008.

V. BASIC COMPUTER SKILLS

1. M S OFFICE

- a) Creating a new document, modifying (editing) a document, page layout, printing documents, creation and modification of tables,
- b) Creating EXCEL sheet, adding removing sheets, modifying data, sorting & filtering data.

1. USES OF INTERNET

- a) Browsing Website – creating account, sending emails, replying to mails, arranging files, searching files from different mails in the mail box.

Syllabus of Legal Discipline

1. **Arbitration and Conciliation Act, 1996 :**
Sec.7,8,9,10,11,12,15,16,17,21,26,27,33,34,35,36 and 43
2. **Registration Act, 1988 :**
Sec.17,18,26,28,29,32,33,34,49 and 89
3. **Industrial Disputes Act, 1947**
Whole
4. **Industrial Employment (Standing Order) Act, 1946 :**
Sec. 3,4,5,6,7,9,13 and 14
5. **Payment of Gratuity Act, 1972 :**
Sec.2A,3,6,7,8,9,13 and 14
6. **Payment of Wages Act,1936 :**
Sec.7,9 and 12
7. **Workmen's Compensation Act, 1923 :**
Sec.3,5,19 and 28
8. **Code of Criminal Procedure,1973:**
Sec.26,28,29,31,41,57,82,83,85,107,125,126,127,133,144,145,154,161,162,164,197,
220,300,305,374,378,397,401,437,438,468,469 and 470.
9. **Code of Civil Procedure,1908 :**
Sec. 10,11,20,24,25,34,47,60,80,88,92,96 to 109, 113,114,115,148A & Order-I, Order-II, Order-III, Order-IV, Order-VI, Order-X, Order-XI, Order-XVI, Order-XIX, Order-XXII, Order-XXIX, Order-XXX, Order-XXXV, Order-XXXVI, Order-XXXIX and Order XI.
10. **Land Acquisition Act,1994 :**
Sec. 4,6,9,13,17 and 18
11. **Sale of Goods Act, 1930 :**
Sec.2,4,12,13,18,19,26 and 55
12. **Mines and Minerals(Regulations& Development) Act,1957:**
Sec.4,4A,5,6,7,8,9,9A,23,23A,30,31,37and 37A.
13. **Companies Act, 1956 :**
Sec.3, 4, 9, 10, 12,433,434,617and 630.
14. **Indian Penal Code, 1860 :**
Sec.21, 100to106, 120A, 120B, 191 to 200, 264 to 267and 299 to 307.

15. **Constitution of India :**
Art14, 16, 19, 32,136,141,226,227 and 311.
16. **Mines Act,1952 :**
Sec. 33,34,36,37,45,46,47 and 53.
17. **Coal Mines Nationalization Act,1973 :**
Whole
18. **Indian Contract Act, 1872 :**
Sec.10,11,23,24,25,26,31,37,51,62 and 73.
19. **Contract Labour (Regulation and Abolition) Act, 1970 :**
Whole
20. **Coal Bearing Area (Acquisition and Development) Act, 1957 :**
Whole.

Syllabus of Land & Revenue Discipline

1. **Land Acquisition Act, :**
Whole
2. **Coal Bearing Area (A & B) Act :**
Whole
3. **Indian Registration Act,**
Whole
4. **Transfer of Property Act :**
Sec. 5,6,7,14, 52, 54,55,100,101,105,106,107 and 108.
5. **Specific Relief Act :**
Sec.5, 6, 7, 8 and 26.
6. **Code of Criminal Procedure :**
Sec.144 and 145.

Syllabus of System/EDP Discipline

1. Fundamentals of Computer & EDP :

Basic Architecture of computer, History of Computer generation, Binary numbers, software concept, Graphical User Interface(GUI) concept, Batch and on-line processing, Multiprogramming and time Sharing.

2. Programming Languages :

Programme flow chart, Elements of COBOL/OOPS (JAVA, C++etc.) and its functionalities

3. Data Structure & Advanced Programming Technique :

Data Structure, Basic concepts of data and their representations, Sequential & linked representation, Arrays, stacks and Queues, Chains, Circularly and doubly linked lists.

4. Data Base Management System :

Data Base – Introduction, Basic terminology, Data Base types, objectives of a data base organization, Brief knowledge of Structured Query language (SQL), basic concept of centralized and distributed computing.

5. System Analysis & Design :

Introduction of System Analysis and components of system, Problem selection, Feasibility study, Cost benefit analysis, input Output design, codifications, Computer procedure design, Flow chart, decision tables, File designing, program codification, Testing & debugging, System maintenance, documentation, System control & Security., hardware and Software selection, Operational management of a computer unit.

Basic concept of Operating System.

6. Personal computers and Business Software :

Role of personal computer in management decision, microprocessor, creation and updating of date base file, report generation, Programming, case studies with data base software,

Usage of Internet, mailing system, concept of three tier technology, www, URI, http(s), basic concept of networking /security.

Usage of Microsoft office package i.e. Word, Excel, Access, Power Points etc.

7. Business Date Processing & its role in Coal Industry :

Operational procedures in details of existing running software packages at Coal India Limited and its Subsidiaries e.g. Working knowledge on Coal Net Application package, System Administration – data security, File transfer, Backup procedure.

8. **Brief knowledge of Cyber L aws :**

Overview

9. **Brief Concepts on Portals like B2B, e-Governance, e-Procurement, e-payment etc.**

Overview

Syllabus of Welfare/Personnel Discipline

1. Manpower Planning :

- (a) Manpower Planning and Process
- (b) Assessment of manpower – shortage / surplus
- (c) Requirement of statutory / non statutory posts.

2. Industrial Relations :

- (a) Meaning and Scope of Industrial Relations
- (b) Impact of industrial Relations
- (c) Role of Government in Industrial Relations
- (d) Industrial Relation System in CIL/Subsidiary companies

3. National Wage Agreement :

- (a) History
- (b) Periodicity of NCWA-I to VIII
- (c) Constitution of JBCCI
- (d) Grade / categorization
- (e) Concept of Minimum Wages
- (f) Social Security Schemes (Life Cover Scheme / Workmen Compensation Benefit / Provision of employment / payment of monthly monetary compensation to dependants / gratuity)
- (g) Welfare measures (Housing / Town Administration / Water Supply / Medical facilities / Ambulance / Educational facilities / Canteen / other welfare activities)
- (h) Wages and Wage structure
- (i) Attendance Bonus
- (j) Annual Increment / Rate of increment
- (k) Wage rate and work norms of piece rates workers
- (l) Fall back wages
- (m) Lead lift and tub pushing
- (n) Special Piece Rate Allowance
- (o) Other Allowance under NCWA
- (p) Leave Rules and national / festival holidays
- (q) RRF and LLTC
- (r) HRA for employees in urban Area
- (s) Recovery of electricity charges
- (t) Supply of fuel
- (u) Payment of overtime wages
- (v) Wages for weekly day of rest / date of retirement
- (w) Anomaly in pay fixation
- (x) Dress Manual

4. Employment Standing Order Act :

- (a) Model Standing Order
- (b) Certified Standing Order

5. **Conduct Discipline & Appeal Rules Applicable to Executives**

6. **Trade Union :**

- (a) Registration of Trade Union
- (b) Registered Trade Union vis-à-vis its violation to Central Trade Union

7. **Collective Bargaining :**

- (a) Concept
- (b) Process

8. **CIL's Rehabilitation and Resettlement Policy**

9. **CIL's Policy on corporate Social Responsibility**

10. **Labour Legislation**

- (a) Industrial Disputes Act, 1947
 - i) Conciliation / reference of disputer through Labour court/ Tribunal
 - ii) Awards
 - iii) Provision of Payment of Wages under ID Act in case of appeal in High Court against the Award.
- (b) Payment of Wages Act, 1936
- (c) Minimum Wages Act, 1948
- (d) Workman's Compensation Act, 1923
- (e) Payment of Gratuity Act 1972
- (f) Shop and Establishment Act
- (g) Coal Mines Provident Fund & Misc. provision Act, 1948
- (h) Mines Act 1952
- (i) Maternity Benefit Act
- (j) Payment of Bonus Act, 1965
- (k) Factory Act, 1948
- (l) Persons with disabilities (equal Opportunities, protection of rights and full participation) Act, 1995
- (m) Coal Mines Pension Scheme 1998
- (n) Apprentice Act, 1961

Syllabus of Security Discipline

A. General Security :

- (1) Role and aim of Security department
- (2) Organisation of Security set-up in CIL/Subsidiaries
- (3) Designation and badges of Rank of CIL (Wage Board / Executives)
- (4) Security Cadre Scheme – Wage Board and Executive of CIL
- (5) Uniform /Dress Regulation applicable for Security Deptt.
- (6) Industrial Security – over – view
- (7) Security of vital installations and vital points of Coal Industry
- (8) Illegal Coal Mining- Preventive action thereof
- (9) Coal Theft/ Pilferage – Preventive steps thereof
- (10) Security arrangements of Explosive Magazines
- (11) Impact of Naxalite activities in Coal belt
- (12) Duties and responsibilities of Area Security Officer
- (13) Surface Fire Fighting Arrangement
- (14) Utilization of techno gadgetry
- (15) Security reports & Returns
- (16) Importance of Physical Fitness in uniformed Forces
- (17) Lodging of FIR with Local police in given situation
- (18) Induction of Contractual Security

B. Regarding Legal Matter :

Knowledge about following managements

1. Indian Penal Code

- (I) Right of Private Defence of body and property, relevant sections
- (II) Offences against Private tranquility
- (III) Offence allegation human body
- (iv) Offence against property

2. Criminal Procedure Code

- ▶ Relevant Sections regarding Security for keeping Peace & behavior
 - ▶ Maintenance of Public order and tranquility, Public Notice sections
 - ▶ Information to Police, Trial and judgment sections, provisions regarding Bail
- 3 Evidence Act : Admission, Oral Admission, Confessions, confession to Police Officer, Professional communications, Accomplice.

4 Motor Vehicle Act (Relevant Sections)

5 Arms Act (Relevant Sections)

6 Explosive Act (Relevant Sections)

7 Unauthorised occupation / Eviction Act

8 Private Security and regulatory Act (PSIR) 2005

Syllabus of Secretarial Discipline

1. Duties and responsibilities of Secretaries.
2. Expectation of the Organisation from a Secretary
3. Planning and Organizing the office for effective functioning
4. Time Management
5. Use of Personal Computer (PC), Unicode software / Programme and other modern office equipments for effective functioning.
6. Communication Skills of a Secretary
7. Use of Internet, E-mail and FAX.
8. PR qualities of a Secretary
9. Arranging meeting, preparing minutes of the meeting and follow-up for implementation of the decisions and preparation of ATR etc.
10. Letter, Office Order, office Memorandum, Notes, Notice and Circulars – its importance and difference.
11. Difference between Private Secretary and Executive Secretary.
12. Brief knowledge of Right to Information Act.
13. Office Management / Administration.
14. Inter Personal relations and managing of Visitors
15. Sorting of Dak / Distribution, Drafting of letters and Note sheet.
16. Indexing and classification of files.
17. Role of Secretary in Rajbhasa Hindi implementation.

Syllabus of E&M Discipline

1. Fundamental of Electrical Engineering :

- a) Basic Laws of Electrical Engineering (Ohm's Law, Kirchhoff's Law, Leuz's Law, Flemming's Rule and Faraday's Law electromagnetic induction)
- b) Basic Units of Electrical Engineering (Volt, Amp, kWh, Ohm, Henry, micro farad)
- c) Measurement of Voltage, Current, Power, energy and measuring tools for the same
- d) Class of insulation and types of materials for the same
- e) Electrical Symbols and plan under Mines Act and BIS.

2. Transformers :

Basic Principle, Components, types and application, Parallel operation, transformer losses, cooling types and efficiency, FLP transwitches, transformer protections.

3. Generators /Motors :

DC Motors: Different types of DC Motors, Speed Control of DC Motors, applications, maintenance.

Alternators : Alternator components, Parallel operation, synchronization

Induction Motors: .Sq.Cage Induction motor, Slip ring induction motor, motor starters, speed control of motors and suitable applications of motors, advantage / disadvantage of slip ring / induction motors, troubleshooting and maintenance of motors.

4. Cables :

Construction of armoured / pliable armoured and flexible trailing cable and its application in underground and OC mines, cable jointing.

5. Braking of Motors : Plugging, Dynamic braking and Regenerative braking

6. Transmission & Distributing (upto HT i.e. 33KV) : Conductor type, Support type, various types of poles, earthing of overhead lines, insulators, lightning arrestors, voltage regulation, maintenance of overhead lines.

7. Electrical Earthing: Earthing System, effect of moisture, Chemical treatment of soil, Earth Electrodes, Earthing of appliances, Measurement of earth resistance.

8. Protective Device & Protection : Fuses (rewirable, HRC), Circuit Breakers (MCCB, MCB, ACB, VCB, SF6) and Relays, Underground Gate – end- Box, FLP Circuit breaker, Field Switches, unitized substation for OCPs, Over Load, Earth Leakage, Short Circuit and Under Voltage protection.

9. Illumination System: Type of lamps, level of illumination required for office, domestic, colliery yard, underground lighting system.

10. **Power Supply** : Substation – Surface & Underground, power supply to underground and OCP mines, Maximum demand, Demand factor, diversity factor, Power factor and its improvement, Power tariff structure.
11. FLP & Intrinsically safe apparatus, Cap Lamp, Battery charger, Signaling equipment
12. Treatment of Electric Shock and artificial respiration, mine safety and first aid.
13. **Energy conservation** : Use of Energy Lamp, renovation of piping system, strata bunker, use of higher voltage nearer to coalface, leakage control of ventilation circuit, installation bank for PF improvement, re-organization of transformer load, selection of adequate size of motors, haul road monitoring, replacement of 'O' ring-seal kit-hydraulic-hoses to arrest leakage of diesel, periodical maintenance of engine – filter hoses – tyre pressure etc.
14. Basic knowledge of electronics
15. Basic computer awareness and its application
16. I.E. Rules
17. Measuring and monitoring instruments/gauges used for mechanical items.
18. **Underground Face Machinery**: PSLW Packages with Shear /Support / AFC etc. Continuous Miner packages with shuttle car, roof bolting machine and feeder breakers, Load Haul Dumper / Side Discharge Loader, Universal Drilling Machine, Man riding system / Coal Drill.
19. **Mine Transport** :
 - a) Belt Conveyor /Chain Conveyor /Haulages
 - b) Winders – Winding engine and its suspension gear, automatic contrivances.
20. **Wire Ropes**: Construction / sizes of ropes for winder and haulage.
21. **Roof Support**: Hydraulic Props, Roof Bolting, Self advancing powered support – its construction, operation and maintenance.
22. **Mine Pumps** : Types of Pumps, its application and pipe-fitting, maintenance
23. **Ventilation Fan** : Types, application and maintenance
24. Lubrication and Lubricants
25. **Gear Boxes**: Types and Function of Gear Boxes, daily / periodical maintenance of Gear Boxes.

26. **Coal Handling:** Coal Handling Plant, Weighing machine and its maintenance.
27. **Boiler and Steam Engine:** Types and application in Coal Industry.
28. Foundry Works, Heat Treatment of Ferrous / Non ferrous metals, Alloys and their use, Revetting.
29. **Conveyor Belting:** PVC/Rubber/Steel Chord belting basic construction and application.
30. **Welding :** Gas and Electrical Welding, electrodes for welding, knowledge of eutectic(low temperature)
31. **Coal Mines Regulation :** Regulation No.33,38-57,71-86, 87-97, 181-186
32. Safety aspects in underground mining operation in respect of DGMS guidelines
33. Routine maintenance and Breakdown maintenance

Syllabus of Excavation Discipline

Basic and working knowledge of principles & operation with full knowledge on maintenance, repair and overhauling of following assemblies /sub assemblies used in Heavy Earth Moving Machinery (HEMM)

1. Internal Combustion Engine :

Difference & application of S.I and C.I Engines, Combustion Process in c.I. Engines

Cylinder arrangement, Firing Order, Fuel injection, fuel consumption.

Performance, Mechanical Efficiency & Output (Horse Power- IHP & BHP)

System of low & high pressure super charging, turbo charging

Cooling, Exhaust & Lubrication system of C.I. Engines.

Daily /Periodical maintenance methods of C.I. Engines, applicable in HEMM

2. Gear Box :

Type & functions of Gear Box.

Difference between Gear Box and Torqmatic Transmissions

Operational Function including Control System & Utility of Torqmatic Transmissions with Mechanical, Electro-mechanical and Electronic Controls

Daily /Periodical maintenance methods of Gear Box & Torqmatic Transmissions in HEMM.

3. Differential / Final Drives; Methods & operation and propagation of power through Differential / Final Drives.

4. Clutch System :

Types of Clutch System – Mechanical, Hydraulic or pneumatically assisted.

Function & Method / operational principal of different type of Clutch System.

5. Brake System ;

Type & application of different types of Brakes available in HEMM – Air over hydraulic or pneumatic or disc type.

Function & Method / operation of different Brake System and its Daily/ Periodical maintenance method

6. **Steering / propel system :**

Working of different steering / propel system used in HEMM – Mechanical Hydraulic assisted and Electric Powered.

7. **Crawler Drive :**

Operation of Crawler mechanism, Track chain, Sprocket idlers, track / carrier rollers and their maintenance

Method of track tensioning arrangement etc.

8. **Tyres :**

Off the Road Tyres (OTR) – Types & Sizes of OTR Tyres used in HEMM

Types of failure of tyres & its possible reasons

Checking & maintenance of Off the Road Tyre

Tyre handling equipment – Operation & use of Tyre handling equipment.

Re-treading – Type & methods of re-treading pertaining to Off the Road Tyre.

9. **Air Compressors :**

Functional difference & Application of reciprocating rotary, screw type compressing different HEMM

10. **Hydraulic System :**

Working of Hydraulic System in different HEMM including hydraulic pump, motor, cylinder, Valve and their maintenance

11. **Hoist/Swing/Propel Systems in Excavator/Dragliners :**

Function & Working of Hoist/Swing/Propel Systems in Excavators/Dragline.

Daily/Periodical maintenance methods of Hoist/Swing/Propel Systems in Excavators/Dragline.

12. **Crowd System in Excavators :**

Function & Working of Crowd System in Excavator.

Daily/Periodical maintenance methods of Crowd System in Excavators

13. **Drag System in Backhoe, Draglines ;**

Function & Working of Drag System in Hyd.Backhoe shovels, Draglines

Daily/Periodical maintenance methods of Drag System in Hyd.Backhoe, Draglines

14. **Rotary and Feed System in Blast hole Drills ;**

Operation & Working of Blast Hole Drills.

Capacity and sizes of Blast hole drills in use in Open cast Mines of CIL

Function of Rotary, feed and dust suppression system

Drill Rod sizes used in Open Cast Mines of CIL, its application and construction in relation to the different drill machines.

Daily /Daily /Periodical maintenance methods of Rotary Blast Hole Drills

15. **Drill Bits ;**

Different types & Sizes of Drill bits used in Open Cast Mines of CIL.

16. **Lubricants ;**

Function properties and application of different type and grades of Lubricants and Grease used in HEMM.

17. **Wire Rope ;**

Construction, sizes with length of Wire Ropes required for different application in Draglines and Rope shovels in use in CIL.

18. **Welding Equipment ;**

Type of Welding equipments and their application

Type of Electrodes and various welding & cutting technologies.

19. **Workshop Equipment ;**

Application of various service tools like pneumatic wrenches, Torque wrenches, Torque multipliers, hydraulic mechanical jacks, machine tools, washing & lubrication equipment, lifting tools (Chain Pulley Block, EOT Cranes, Forklift Truck) & tackles , Bearing Puller etc..

20. **Mobile Cranes ;**

Tyre & Crawler mounted cranes and their application.

21. **Auto Electricals ;**

Different Auto Electric components used in HEMM – their application & maintenance..

Batteries – Rating, application and maintenance in reference to HEMM

22. **Measuring & Monitoring Instruments ;**

Different measuring & monitoring instruments used for HEMM and their application for both Mechanical & Electrical Systems..

23. **Electric Prime Movers ;**

Principles of Electrical Prime Movers – LT, MT & HT.

Function & Working of Alternators, Generators, Squirrel cage/induction motors, Synchronous motors used in HEMM

Type & Class of insulation

Daily/Periodical maintenance methods

24. **AC/DC Control System**

Type of Control System.

Including ward-Leonard control etc.

Thyristor and other electronic controls

25. **Transformers, Relays etc,**

Types & Function of Transformers Relays .

Components of Transformer

Losses & efficiency

26, **Armoured / Trailing cables :**

Type & application in opencast mines/equipment.

Type & class of insulation

Cable – jointing sets.

27. **Field Switches –** with ACB, OCB and VCBs and their maintenance

28. **Maintenance & monitoring of statistical data** relating to Equipment performance & Production

29. **DGMS Mining Rules & Regulations related to OC Mines**

30. **Open Cast Mine Planning –** Basic Knowledge

31. **General Knowledge on Technical Parameters** – of the Earth moving Equipment deployed in CIL Mines – Equipment wise
32. **Knowledge on deployment of HEMM** in the Mines for optimum utilization
33. **Basic Knowledge of Haul Road/Dump Road** – Planning construction and maintenance
34. **Safety aspects in Mining operation in respect of DGMS guide lines** for different HEMM

Syllabus of Civil Discipline

1. Soil Investigation for foundation work (including exploratory boreholes), Plate bearing test for determining bearing capacity of soil, different type of foundations including pile foundation, typical cross-section of different type of foundation.
2. **Fundamental of design :**
 - (i) RCC Slabs both singly and two-way reinforced
 - (ii) Beams – Rectangular, Tee Beam, doubly reinforced, inverted beams and L-beam.
 - (iii) Quality Control: Quality Control of building materials and acceptability of their test rules (viz., Bricks, Cement, Aggregate, Bitumen, A.C. Roofing sheet, Tarfelt, Structural and reinforcement steel section, CI & GI Pipes (a) Site laboratory, (b) Mandatory.
3.
 - (i) Quantity Surveying
 - (ii) Preparation of detailed estimate to standard proforma for various civil engineering works like residential building, hospital building, office building, workshop and other industrial structure, road, culvert, bridge etc.
 - (iii) Rate analysis as per CPWD/NBO specification
 - (iv) Horticulture: Method of Tree plantation, nursery, Manuring and improvement of soil, roadside plantation of trees, maintenance of plants.
 - (v) Surveying: General Survey, Compass-Survey, Leveling, Theodolite Survey, Earth Work calculation.
 - (vi) Knowledge of Civil Engineering Manual, CIL.
4.
 - (i) Types of Water Treatment plant and its general details including its maintenance.
 - (ii) Distribution of Water Supply network, waste water management
 - (iii) Sewerage treatment
 - (iv) Sanitary fittings and installation.
5.
 - (i) Construction of Road including testing of road materials
 - (ii) Flexible pavement
 - (iii) Maintenance of Roads its procedure and norms
6. Site Supervision: Quality Control, maintenance of site order books, different site documents, labor welfare rules, registers to be maintained for construction work, Preparation of bar chart progress monitoring.

**राजभाषा संवर्ग में वरीय अधिकारी(सचिव रा.भा.) ई-2 पद हेतु निर्धारित
पाठ्यक्रम**

क्रम सं.	विषय
1	सचिव के कर्तव्य एवं जिम्मेदारियों
2	सचिव से संस्थान की अपेक्षाएँ
3	कार्यालय को प्रभावी ढंग से चलाने के लिए योजना एवं संरचना
4	समय प्रबंधन
5	डाटा प्रबंधन एवं संप्रेषण के लिए पर्सनल कम्प्यूटर का प्रयोग, यूनीकोड सॉफ्टवेयर, फॉन्ट/प्रभावी ढंग से कार्य सम्पादन के लिए अत्याधुनिक कार्यालयीन संयंत्र एवं प्रोग्रामिंग इत्यादि
6	सचिव की संप्रेषण निपुणता
7	इंटरनेट, ई-मेल एवं फैक्स का प्रयोग
8	बैठक, कार्यशाला, सम्मेलन, सेमिनार आदि आयोजित करना, बैठक का कार्यवृत्त तैयार करना एवं उसमें लिए गए निर्णयों के क्रियान्वयन के लिए उसकी अनुवर्ती कार्रवाई करना एवं कृत-कार्रवाई रिपोर्ट आदि तैयार करना
9	पत्र, कार्यालय आदेश, कार्यालय ज्ञाप, टिप्पणी, सूचना एवं परिपत्र – की महत्ता एवं अंतर
10	निजी सचिव एवं कार्यपालक सचिव में अंतर
11	सूचना अधिकार अधिनियम की संक्षिप्त जानकारी
12	कार्यालय प्रबंधन एवं प्रशासन
13	कार्मिकों के साथ संबंध और आगन्तुकों की व्यवस्था
14	डाक छॉटना/वितरण, पत्रों एवं टिप्पणी-पत्र का प्रारूपण
15	संचिकाओं का वर्गीकरण एवं निर्देशिका तैयार करना
16	राजभाषा संबंधी सांविधिक उपबंध
17	राजभाषा अधिनियम, 1963 (यथा संशोधित-1967), राजभाषा संकल्प-1968 और वार्षिक कार्यक्रम, राजभाषा नियम – 1976 (यथा संशोधित 1987)
18	हिन्दी के प्रयोग के बारे में नीति संबंधी आदेशों का अद्यतन ज्ञान
19	राजभाषा से संबंधित विभिन्न समितियाँ, विभिन्न आवधिक रिपोर्टें एवं निरीक्षण व्यवस्था
20	हिन्दी शिक्षण योजना और केन्द्रीय हिन्दी प्रशिक्षण संस्थान की सहायता से हिन्दी शिक्षण की व्यवस्था तथा विभिन्न प्रोत्साहन योजना, हिन्दी प्रशिक्षण हेतु रोस्टर रजिस्टर बनाने का ज्ञान
21	हिन्दी से अंग्रेजी तथा इसके विपरीत अनुवाद करने की योग्यता
22	हिन्दी टंकण एवं आशुलिपि की क्षमता

राजभाषा संवर्ग में राजभाषा अधिकारी, ई-2 पद हेतु निर्धारित पाठ्यक्रम

क्रम सं.	विषय
1.	राजभाषा संबंधी सौविधिक उपबंध
2.	राजभाषा अधिनियम, 1963 (यथा संशोधित-1967)
3.	राजभाषा संकल्प-1968 और वार्षिक कार्यक्रम
4.	राजभाषा नियम - 1976 (यथा संशोधित 1987)
5.	हिन्दी के प्रयोग के बारे में नीति संबंधी आदेशों का अद्यतन ज्ञान
6.	राजभाषा से संबंधित विभिन्न समितियाँ जैसे-
क	संसदीय राजभाषा समिति
ख	केन्द्रीय हिन्दी समिति
ग	मंत्रालय की सलाहकार समिति
घ	राजभाषा कार्यान्वयन समिति
ड.	नगर राजभाषा कार्यान्वयन समिति के बारे में जानकारी
7.	आवधिक रिपोर्टें एवं निरीक्षण व्यवस्था
8.	हिन्दी शिक्षण योजना और केन्द्रीय हिन्दी प्रशिक्षण संस्थान की सहायता से हिन्दी शिक्षण की व्यवस्था तथा प्रोत्साहन योजना
9.	हिन्दी कार्यशाला, सम्मेलन, सेमिनार और हिन्दी दिवस तथा हिन्दी पखवारा आयोजित करने का ज्ञान
10.	हिन्दी प्रशिक्षण हेतु रोस्टर रजिस्टर बनाने का ज्ञान
11.	अनुवाद/अनुवाद के प्रकार, अनुवाद व्यवस्था के उपयोग से संबंधित नीतिगत आदेश
12.	हिन्दी से अंग्रेजी तथा इसके विपरीत अनुवाद करने की योग्यता
13.	अंग्रेजी के तकनीकी शब्दों का हिन्दी में पर्याय
14.	हिन्दी और अंग्रेजी में प्रारूपण एवं लेखन
15.	संसदीय राजभाषा समिति के प्रतिवेदनों पर राष्ट्रपति जी के विभिन्न आदेश
16.	हिन्दी साहित्य का इतिहास एवं विकास
17.	राजभाषा अधिनियम, नियम एवं नीतिगत आदेशों के कार्यान्वयन के संबंध में कोल इण्डिया लिमिटेड/अनुषंगियों के निष्पादन पर सामान्य दृष्टिकोण और इनके निवारण, उपचार में अभ्यर्थी द्वारा किया गया कोई योगदान
18.	सरकारी प्रकाशन, हिन्दी पत्र-पत्रिकाओं एवं हिन्दी पुस्तकों तथा सहायक साहित्य की खरीद की जानकारी

Syllabus for Materials Management (2011)

1. Basic Principles and Practices.

- Concept and details of integrated Materials Management System
- Importance and scope of Materials Management
- Supply Chain Management
- Make or buy decision
- Value Analysis
- Elements of general management including Planning, Organizing, Directing, Coordinating and Controlling
- Business Correspondence

2. Purchase Management

- CIL Purchase Manual 2006 and its amendment
- Sourcing Supplier Evaluation
- Purchasing Cycle
- Tendering – Scrutiny of indents, preparation of tender documents, Evaluation of tenders and Award of orders etc.
- Economic Ordered quantity
- Lead Time Analysis
- Legal aspect of purchasing – Indian Contract Act, Sales of Goods Act, Negotiable Instruments Act, Partnership Act, Indian Companies Act, Sales Tax Act, Octroi Indian Patent Law, Arbitration Act, Excise and Customs Act, INCOTERMS, Letter of Credit
- CVC Circulars
- Integrity Pact
- Completion Commission of India

3. **Store and Inventory Control Management:**

- Online Materials Management System
- Standardization and Codification
- Stores function, Types of Stores, Stores Identification System, Receipts, Inspection, Storage Procedure, Preservation Procedure, Safety and Security Aspect, Issue System, Disposal off unserviceable scrape including survey off and disposal activity, stock verification and store accounting, store records, legal aspects of store keeping
- Store Accounting
- Need for Inventory, Inventory cost, inventory control measures (ABC, XYZ Analysis etc.). Determination of economic ordered quantity, Determination of safety stocks, spare parts Inventory.
- Materials Handling Systems and equipments, Economic aspects of Materials handling and Transportation, Comparative Transportation costs, Issues relating to selection of carriers.
- Insurance and Responsibilities of the different stakeholders.

**UPDATED SYLLABUS FOR QUALIFYING EXAMINATION FOR SELECTION
FROM NON-EXECUTIVE TO EXECUTE IN DRILLING DISCIPLINE**

PAPER – II

1. Various Methods of Drilling
 - a. Diamond Drilling (coring) – Wire line & Conventional
 - b. Rotary Drilling
 - c. DTH Drilling
2. Drills and its major sub-assemblies
3. Function of Hydraulic System in drills
4. Types and major features of Mud Pumps, Pressure Pumps and supply pumps.
5. Types of Derricks.
6. Drilling Accessories
Drill rods, casings, core barrels, core lifters, core lifter cases, subs and adapters, wire ropes, fishing and reaming equipment, hoisting plug, water swivel, Kelly DTH hammer etc.
7. Tools
Pipe wrenches, chain tongs, foot clamps etc.
8. Drilling Fluids:
Water, mud, air, and polymer
9. Cutting Tools
 - a. Diamond bits, surface set and impregnated bits, types and selections of bits SPC carat, matrix, water ways
 - b. Tungsten, Carbide bits
 - c. Rock Rollers bits
10. Operation Parameters
Speed, Pressure etc
11. Prime Movers and its selection
12. Operation – Availability and Utilization
13. Borehole site preparation & restoration
14. Geophysical Logging
15. Miscellaneous

Recording of shift reports, Daily progress reports, store debit schedules, plant history sheet, bit history sheet etc

16. Drilling Camp Management:

- a. Provisioning of spares
- b. Stores Management
- c. Drill crew and Shift Management

17. Management/ Storage of borehole cores

18. Environment aspects.

**SYLLABI FOR EXAMINATION FOR SELECTION FROM NON-EXECUTIVE TO EXECUTIVE
POST IN SALES & MARKETING – PAPER –II**

1. Marketing Management:

Marketing in a developing Economy. Application of marketing in Service Sector

2. Consumer Behavior:

Determinant of Consumer behavior, Indian Consumer Environments

3. Market Segment:

Market targets. Type of Consumers

4. Products:

Different type of Coal & Coal Products

5. COAL MARKETING:

- Coal Marketing and distribution scenario before decontrolled regime of Coal i.e. Before year 2000
State Sponsorship, Rail movement, Linkage System, NCLC, Dispatch by road, Stock Liquidation plan.
- System of linkage through Standing Inter Ministerial Forum. SLC for core Sector Consumers in Power, Cement, Steel, Fertilizer, Loco etc.
- Coal Marketing and distribution scenario after coal decontrolled regime, e-auction, background of New Coal Distribution Policy (NCDP)
- NCDP and new categorization of consumers
- Implementation of NCDP for existing and new consumers. Fuel Supply Agreement (FSA) for existing consumers
- E-auction-spot and forward
- Implementation of Letter of Assurance (LOA) system for different category of new consumers
- Role of Marketing at Area, Subsidiary, CIL and also RSO Level
- General Classification of Coal. Long Flame Definition
- Different grades of Coal
- Coal grade determination, GCV
- Coal sampling procedure and its analysis – Commercial Arrangement for determination of quality of Coal (UHV), determination of weighted average
- Coking coal availability, beneficiation and supply to Steel plants and other metallurgical industries.

- Sizing/crushing of coal & weighment arrangements.
- Loading infrastructure – CHP, Weigh-Bridge etc. and demurrage wharfage including under-loading and over-loading charges
- Pricing of coal by CIL, and Realization