

## Syllabus for the post of Chemist/Technical Inspector

- 1 **Coal Quality Assessment:** Grading of coal (Old & New), base of grading, sampling-mannual and auto sampling, collection procedure, instrument used-Muffle furnace for Ash determination, oven and humidity chamber for moisture determination, volatile matter furnace, Bomb calorimeter, its function and determination of GCV on equilibrated basis.  
  
Titration Procedure, BIS Specifications.
  - **Sample Collection & Coal Analysis:** - How to take sample from Wagon/Siding/Stock/Truck/Conveyor Belt/ Coal Seam/Bunker Coal Sampling Procedure (IS followed) and its analysis. Proximate and ultimate analysis of Coal.
2. History of coal, coal formation, types of coal and its product, composition of coal, different gradets of coal (categorization of coal).
3. General information about Coal India Limited and S.E.C.L.
4. **Quality aspects of coal:**
  - Annual grade declaration procedure & Coal Controller guideline.
  - Historical events information of Coal being nature's gift to the society.
  - Sampling- related IS and its details required for sampling (i.e., collection & kpreparation) and analysis. Knowledge of IS 1350 part I & Part II, IS 436 Sec.(i) & Sec (II) of part(i). IS 17025-general requirement for the competence of testing and calibration labrotaries.
  - Role of FC, Ash, VM & Moisture in Pricing of Coal.
  - Varies levies and statutory charges and taxes on coal.
  - Determination of equilibrated ash, moisture & GCV, also on Air Dried Basis. As received basis (i.e., ARB basis).
  - Calculation of various index for coking coal like coking index, LTGK, FSI, Micum and shetter index.
  - Conversion of units of coal.
  - Ash fusion temperature and effects on boiler.
  - FSA provision regarding quality i.e., ash, moisture and grade. Excess surface moisture.
  - Process of NABL accreditation of lab, measurement of uncertainty.

2/12. 20/10/21  
महाप्रबंधक (मु.नि.)  
गुणवत्ता नियंत्रण विभाग  
एस.ई.सी.एल. मुख्यालय  
बिलासपुर (छ.ग.)

C  
28/1

5. **Dispatch of Coal:**

- Sizing/crushing of coal – jaw crusher, screening (IS followed)
- Weighing arrangement.
- Steam, Slack, ROM and Sized coal.
- Types of Transportation.
- Types of loading: Bunker Loading, CHP, SILO & Pay loader loading picking arrangement of stone/shale, road weighbridge & rail WB.

6. **Preparation of sample:**

- Procedure used, reduction of sample as per BIS, general terms, total moisture, equilibrated moisture, conditioned moisture, equilibrated moisture, conditioned moisture, air dried moisture, analysis results reporting, record maintenance, chemical reagents used, BIS followed.
- Knowledge of equipment related with coal preparation and analysis.

7. **Coal Pricing:**

Pricing policies/process and strategies, pricing of coal by CIL and realization, fuel supply agreement (FSA), E-auction, NCDP, Overload charge, underload charge and demurrage charge, calculation of excess surface moisture as per FSA provision.

- 8 Coal grade determination based on GCV concept, varies as per notification by CIL during UHV and GCV regime, acid correction.
9. 3<sup>rd</sup> party sampling, 3<sup>rd</sup> party appointed by Power producers/utilities.
10. Coal Controller Organization (CCO) circulars for respective system, general information about laboratory.
11. Mental Ability/ Quantitative Ability
12. Logical & Reasoning Skills
13. Knowledge regarding CIL/SECL/State
14. General Awareness

3/2/21  
28/01/21  
महाप्रबंधक (ग.नि.)  
गुणवत्ता नियंत्रण विभाग  
एस.ई.सी.एल. मुख्यालय  
बिलासपुर (छ.ग.)

28/1