

NATIONAL REMOTE SENSING CENTRE
ADVERTISEMENT NO.NRSC/RMT/3/2017 DATED 20.05.2017
Name of the Post: Technician – B (Lab.Asst.-Chemical)
Post Code: TB 5

SYLLABUS – WRITTEN TEST

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| Type of Examination | : | Objective Type (Multiple Choice Questions) |
| No. of Questions | : | 80 Questions |
| Apportionment of marks | : | Each Question carries one mark |
| Duration of Examination | : | 02 Hours |

Qualification Requirement: ITI/NTC/NAC in Lab.Asst.-Chemical Trade
(Examination will broadly comprise of below mentioned topics as covered in ITI/NTC/NAC in Lab.Asst.-Chemical trade)

1. General Safety: Introduction & importance of safety & General precautions observed in the laboratory. Fire prevention and fire control in chemical industries. Study of personal protection equipments (PPEs) used in chemical plant. First aid in chemical plant. Introduction to occupational health hazard. Environmental pollution, sources, causes, consequences and controls. Fire & Safety in chemical Lab / Plant. Introduction of pollution control.
2. General & Physical Chemistry. Introduction to chemistry. Elements, atoms & molecules, Chemical & physical changes
3. The air, the water, the laws of chemical combinations & atomic theory. Mixtures & compounds. Gas laws. Kinetic theory of gases. The structure of atom. Radioactivity. Electro-chemistry & electrolysis. Chemical bonding. Oxidation–reduction. Acids – bases
4. Chemical equilibrium. Thermo-chemistry & thermodynamics.
5. Periodic table of the elements.
6. Atomic molecular and equivalent weights.
7. Crystallography. Solutions.
8. Colloidals osmosis catalysis.
9. Laboratory processes, corrosion.
10. To study different types of apparatus and equipment used in chemical laboratory, their construction, function and precaution etc.
11. Volumetric analysis and analytical chemistry (introduction part). Only concentration of solutions. safety precautions to be taken in chemical laboratory.
12. Periodic table study of S & P Block Elements
13. Periodic table study of: (a) Zero group (b) Transition Elements.
14. Periodic table study of: (a) 4th B group (b) 5th B group (c) 6th B group (d) 7th B group (e) 8th B group elements
15. Metallurgy of : (a) Aluminum. (b) Copper
16. Metallurgy of : (a) Iron & Steel (b) Zinc & its alloys
17. Metallurgy of : (a) Silver (b) Chromium
18. Non-Metals: Preparation, properties & uses of following:
(a) Hydrogen & its peroxide. (b) Oxygen (c) Sulphur & its compounds.
19. Preparation, properties & uses of following: (a) Nitrogen & its compounds.
(b) Phosphorus & its compounds Preparation, properties & uses of following : Cement, soda ash, sodium carbonate. Sodium-bi-carbonate, glass, alums and hypo etc.
20. Preparation, properties & uses of following: Bleaching powder, aluminum chloride, carborandum, CaC₂, K₃Fe(CN)₆, K₄Fe₃(CN)₆, white lead, writing ink etc.
21. Introduction to Organic Chemistry. Isomerism & its types.
22. Types of organic reactions. Classification & nomenclature. Aliphatic hydrocarbons
23. Halogen derivatives of hydrocarbons – aliphatic alcohol Ethers, Aldehydes, Ketones,

Carboxylic acid, Amides & Anhydride, Acid Halides. Esters, Soaps & Detergents. Amines, Cyanogen compounds, Compounds with nitrogen, urea, Polymers, Aromatic, Aromatic Hydrocarbons. Halogen derivatives, nitrogen compound, aromatic ethers.

Syllabus for Skill Test

1. Quantitative analysis- Acid -base titrations- definitions, reagents required, principle, method, reactions, calculations.
2. Preparation of standard solutions- preparation from stock solutions, - definitions, Apparatus needed, formulae, methodology, calculations.
3. Identifications of lab items and their uses, chemicals and Formulae (for inorganic chemicals).