

सहायक रासायनिक विश्लेषक, न्यायसहायक वैज्ञानिक प्रयोगशाळा,
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परीक्षेचे टप्पे :- लेखी परीक्षा - २०० गुण,

मुलाखत - ५० गुण.

-: परीक्षा योजना :-

विषय व संकेतांक	प्रश्न संख्या	गुण	कालावधी	दर्जा	माध्यम	प्रश्नपत्रिकेचे स्वरूप
विषयाशी संबंधित घटक (संकेतांक- ०८५)	१००	२००	एक तास	पदव्युत्तर पदवी	इंग्रजी	वस्तुनिष्ठ बहुपर्यायी

अंतिम गुणवत्ता यादी ही वस्तुनिष्ठ परीक्षेतील व मुलाखतीतील एकत्रित गुणांवर आधारीत राहिल.

-: अभ्यासक्रम :-

अनु.क्र.	घटक व उपघटक
1.	Basic concepts in Analytical Chemistry-
a.	Preparation of solution, Concentration units, mole, molarity, molality, equivalent weight, normality, ppm, milliequivalents and other related units.
b.	Definition of the terms :- Precision, deviation, mean deviation, standard deviation, accuracy, absolute error, types of errors, Students 't' test, Confidence limit, Criteria for rejection of observation.
c.	Titrations:- Acid-base, redox, precipitation, complexometric, Indicators, theory of indicators, Metal-ion indicators, non-aqueous titrations.
d.	Gravimetric Analysis :- Preparation of sample solution, precipitation, types of precipitates. Role of organic precipitants in gravimetric analysis. Some important organic precipitants.
e.	Sampling, extraction, purification and identification of substances.
2.	Analytical techniques in Inorganic Chemistry-
a.	Atomic spectroscopic techniques:- Flame emission, uv-visible spectroscopy, AAS(Atomic Absorption Spectroscopy), SEM(Scanning Electron Microscopy), Energy Dispersive X-ray Spectrophotometry, Emission Spectroscopy.
b.	Electro-analytical Techniques such as polarography, Amperometry, Voltammetry, Electro-gravimetry, Cyclic Voltammetry and Stripping Voltammetry.
3.	Analytical Techniques in Organic Chemistry-
a.	Spectroscopy :- Theory and application in chemical analysis of UV- Vis, IR(FTIR), NMR, MS, Raman and Fluorescence Spectroscopy

	b	Separation Technique :- Theory and application in chemical analysis of Crystallisation, distillation, Fractional Distillation under reduced pressure, Paper chromatography, TLC, HPTC, GLC, LC, HPLC, GCMC, LCMC, Ion exchange chromatography, Adsorption chromatography, Reverse phase chromatography.
4.	Analytical Techniques in Biochemistry-	
	a	Methods for Estimation:- Protein, Nucleic acids, Lipids, Carbohydrates.
	b	Biological buffers.
	c	DNA finger printing RFLP (Restriction Fragment Length Polymorphism), PCR (Polymerase Chain Reaction), RT-PCR (Reverse Transcriptase Polymerase Chain Reaction), RIA (Radio Immuno Assay)
	d	Separation of Biomolecules :- Affinity chromatography, Molecular exclusion chromatography (gel filtration), One Dimension (PAGE) and Two Dimension electrophoresis, Iso-electric focusing, High voltage electrophoresis, SDS-PAGE, Agarose electrophoresis, capillary electrophoresis.
	e	Isotope tracer technique
	f	Enzymes :- Classification, Iso-enzyme, DNA Polymerase enzyme
	g	Blood Groups.

दिनांक - ०९/०६/२०१७.

अवर सचिव
महाराष्ट्र लोकसेवा आयोग