

Roll No. :

Total No. of Questions : 11]

[Total No. of Printed Pages : 3

BPMS-512

M.Sc. (Previous) Examination, 2023

CHEMISTRY

Paper - IV CH-404

(Analytical Chemistry)

Time : 3 Hours]

[Maximum Marks : 75

Section-A

(Marks : 2 × 10 = 20)

Note :- Answer all *ten* questions (Answer limit **50** words). Each question carries **2** marks.

Section-B

(Marks : 5 × 5 = 25)

Note :- Answer all *five* questions. Each question has internal choice (Answer limit **200** words). Each question carries **5** marks.

Section-C

(Marks : 10 × 3 = 30)

Note :- Answer any *three* questions out of five (Answer limit **500** words). Each question carries **10** marks.

Section-A

1. (i) How do you identify a Functional Group ?
- (ii) What are the *two* methods of Soil Analysis ?

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- (iii) Define Conductometry.
- (iv) What is Thermo Mechanical System ?
- (v) What are the principles of Absorption Spectroscopy ?
- (vi) Discuss basic principles of Photoacoustic Spectroscopy.
- (vii) What is the principle of Raman Spectroscopy ?
- (viii) What is NMR spectroscopy used for ?
- (ix) Why is it called X-ray diffraction ?
- (x) What do you mean by neutron diffractions ?

Section-B

2. Discuss antimicrobial agents.

Or

Explain method is used in water analysis in Chemistry.

3. Discuss the procedure of thermogravimetric analysis.

Or

Principle of potentiometric titrations and its applications.

4. Discuss the theory of Atomic Spectroscopy and its applications.

Or

Discuss the role of ESCA in structure determination of organic compounds.

5. Explain, how IR spectroscopy is useful in structure determination.

Or

Explain NMR spectroscopy and how it works ?

6. Discuss low energy electron diffraction and structure of surfaces.

Or

What is the significance of Ramachandran Diagram ?

Section-C

7. (a) Write explanatory note on functional groups. 5
(b) How to test soil for building construction ? 5
8. Explain the conductometry titrations and basic principle, its applications.
9. (a) Discuss spectra of hydrogen atom and alkali metal atoms. 5
(b) Explain basic principle of photoacoustic spectroscopy and applications. 5
10. What do you mean by finger print region in infrared spectrum ? What is the essential criteria for a molecule to be infra red active ? Give selection rule for IR spectrum.
11. (a) Write explanatory note on X-ray analysis of a crystal. 5
(b) Phase problem. 5