

Roll No. :

Total No. of Questions : 11]

[Total No. of Printed Pages : 3

CHEMSEM-104

M.Sc. (Ist Semester) Examination Dec., 2022

CHEMISTRY

Paper - CC-4

(Analytical Chemistry-I)

Time : 3 Hours]

[Maximum Marks : 40

Section-A

(Marks : 1 × 10 = 10)

Note :- Answer all *ten* questions (Answer limit **50** words). Each question carries 1 mark.

Section-B

(Marks : 3 × 5 = 15)

Note :- Answer all *five* questions. Each question has internal choice (Answer limit **200** words). Each question carries 3 marks.

Section-C

(Marks : 5 × 3 = 15)

Note :- Answer any *three* questions out of five (Answer limit **500** words). Each question carries 5 marks.

Section-A

- (i) What is meant by Antimicrobial Agents ?
(ii) Define PFA Act.

BRI-4

(1)

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- (iii) How will you carry out acid-base titration by potentiometry ?
- (iv) Name the instruments which generally used for the measurement of potentials.
- (v) Explain Franck-Condon principle.
- (vi) Differentiate between the radiative and non-radiative decay.
- (vii) What do you mean by Overtones ?
- (viii) Explain the Stoke and Anti-stokes lines.
- (ix) Explain Debye Scherrer equation.

Section-B

2. Define the class-I and class-II type of preservatives.

Or

Discuss about the food standards.

3. What is meant by an ion selective electrode ? Explain with suitable example.

Or

Explain the difference between conductometry and high frequency titrations.

4. Discuss about the vector representation of momenta and vector coupling.

Or

Explain the electronic spectra of polyatomic molecules.

5. Explain the principle of Raman and Laser Raman.

Or

How would you differentiate between these using FTIR ?

- (i) Ethanol and Ethanal
- (ii) Propanone and Propanal

6. Write short note on Miller Indices.

Or

Explain Ramchandran diagram.

Section-C

7. What is meant by drug ? Discuss about the various protocols utilised for the analysis of standard drugs.

8. What is meant by Conductometry ? Explain the low and high frequency titrations.

9. Write short notes on the following :

(i) Atomic spectra of alkali metal atoms

(ii) Energy levels and molecular orbitals

10. Discuss the basic principles of FTIR and UV-vis spectroscopy and mention the application of FTIR and UV-vis spectroscopy.

11. Write short notes on the following :

(i) Laue method

(ii) Absolute configuration of molecules