Enrollment No._____

NAVRACHANA UNIVERSITY
a UGC recognized University

School: School of Science
Program: M. Sc. in Chemistry (Analytical)
Year: 2nd **Semester:** 3rd
Examination: End Semester Examination
Examination year: December - 2021

Course Code: CH212 **Course Name:** SPECTROCHEMICAL ANALYSIS-II AND KINTIC METHODS OF ANALYSIS

Date: 02/12/2021 **Total Marks:** 40
Time: 08:30 am to 10:30 am **Total Pages:** 2

Instructions:

- *Write each answer on a new page.*
- *Use of a calculator is permitted.*
- ** COs=Course Outcome mapping. # BTL=Bloom's Taxonomy Level mapping*

Q. No.	Details	Marks	COs*	BTL#
Q.1	Fill in the blanks (Write complete statement in answer sheet) 1. Extent of growth of bacteria can be monitored using …… method. 2. Example of a fluorimetric agent is …….. 3. Analyzer in X-ray fluorescence is made up of …….. 4. Narrow beam of X-rays are produced with the help of a …….. 5. In polymers the …… can be measured using turbidimetry and their crystallinity can be measured using …….. method. 6. Optical element used to obstruct undesired wavelength of light is called as …… 7. Rotating shutter used in a phosphorimeter is also known as …….. 8. The choice between nephelometric and turbidimetric analysis depends on …… 9. Ethyl alcohol is added to argon in GM counter for …….. 10. Optical element used to allow desired wavelength of radiation is called as …….. 11. Absorption of incident light by a sample is called as …….. 12. The purpose of using liquid nitrogen is used in phosphorimetry is …….. 13. The method in which the time needed to bring about change in concentration of reactant or product is measured is known as …… 14. Lines originating from transition between L and K shells are called as ……	**15**	CO1, CO2	BT1, BT2, BT3
Q.2	Answer the following (a) Draw a neat labelled diagram of a Coolidge tube. (b) Scattering of light is elastic in fluorimetry but non-elastic in case of nephelometry. Explain.	**6**	CO2	BT3, BT4

(c) Explain why Scanning Electron Microscopy (SEM) has two different types of detectors.

Q.3 Explain **any three** of the following **9**

(a) Differentiate between turbidimetry and nephelometry.

(b) Explain what materials are used as sample holders in UV-Vis, IR and X-ray fluorescence techniques and why? CO3, CO4 BT2, BT3, BT4, BT5

(c) Describe any three applications of X-ray absorption in detail.

(d) Explain rotating crystal method for X-diffraction studies.

Q.4 Answer **any two** of the following **10**

(a) What is scintillation? Explain its significance in detection of X-rays.

(b) Explain the types of relaxation methods used to study reaction changes. Describe stopped flow method for study of fast reaction kinetics. CO4 BT1, BT2

(c) Explain Jablonski diagram indicating conditions in which a molecule shows fluorescence and phosphorescence.

**********End of Question Paper**********