



BP701T: INSTRUMENTAL METHODS OF ANALYSIS (THEORY)
QUESTION BANK

1. UNIT I: UV-VISIBLE SPECTROSCOPY, FLUORIMETRY (10 HOURS)

1.1 10-MARK QUESTIONS

1. With a neat labeled diagram, explain the principle and instrumentation of a double beam UV-Visible spectrophotometer.* TNMGRMU Dec 2021, TNMGRMU Dec 2023, TNMGRMU Oct 2024, GPAT 2021, GPAT 2023, GPAT 2024, NIPER 2021, NIPER 2023, NIPER 2024
2. Derive the Beer-Lambert's law mathematically and discuss the reasons for deviations from the law.* TNMGRMU May 2022, TNMGRMU Oct 2022, GPAT 2022, NIPER 2022
3. Explain the theory and instrumentation of a fluorimeter, including the role of singlet, doublet, and triplet states in fluorescence.* TNMGRMU Mar 2023, GPAT 2023, NIPER 2023
4. Discuss the electronic transitions in UV-Visible spectroscopy and their applications in spectrophotometric titrations and multi-component analysis.
5. Describe the solvent effects on UV-Visible absorption spectra and their significance in analytical applications. TNMGRMU Dec 2021

1.2 5-MARK QUESTIONS

1. Explain the different types of electronic transitions involved in UV-Visible spectroscopy.* TNMGRMU May 2022, TNMGRMU Mar 2023, GPAT 2022, GPAT 2023, NIPER 2022, NIPER 2023
2. Discuss the factors affecting fluorescence intensity and their impact on fluorimetric analysis.* TNMGRMU Dec 2021, TNMGRMU Mar 2023, TNMGRMU May 2024, TNMGRMU Oct 2024, GPAT 2021, GPAT 2023, GPAT 2024, NIPER 2021, NIPER 2023, NIPER 2024
3. Explain the Jablonski diagram and its significance in understanding fluorescence.* TNMGRMU May 2022, GPAT 2022, NIPER 2022
4. Write a note on the applications of UV-Visible spectroscopy in pharmaceutical analysis. TNMGRMU Oct 2022



5. Describe the principle of simultaneous equation method for multi-component analysis in UV spectroscopy.* TNMGRMU Aug 2023, TNMGRMU Oct 2024, GPAT 2023, GPAT 2024, NIPER 2023, NIPER 2024
6. Explain the role of chromophores and auxochromes in UV-Visible spectroscopy. TNMGRMU Mar 2023
7. Write a note on the instrumentation of a single beam UV-Visible spectrophotometer. TNMGRMU Oct 2024

1.3 2-MARK QUESTIONS

1. Define Bathochromic shift and Hypsochromic shift.* TNMGRMU Dec 2021, TNMGRMU May 2022, TNMGRMU Dec 2023, TNMGRMU Oct 2024, GPAT 2021, GPAT 2022, GPAT 2023, GPAT 2024, NIPER 2021, NIPER 2022, NIPER 2023, NIPER 2024
2. State Beer's Law and Lambert's Law.* TNMGRMU Mar 2023, TNMGRMU May 2024, GPAT 2023, GPAT 2024, NIPER 2023, NIPER 2024
3. What are chromophores? Give two examples.* TNMGRMU Dec 2021, TNMGRMU Dec 2023, GPAT 2021, GPAT 2023, NIPER 2021, NIPER 2023
4. What are auxochromes? Give two examples.* TNMGRMU May 2022, TNMGRMU Aug 2023, GPAT 2022, GPAT 2023, NIPER 2022, NIPER 2023
5. Define quenching and list two factors affecting it.* TNMGRMU May 2022, TNMGRMU Dec 2023, TNMGRMU May 2024, GPAT 2022, GPAT 2023, GPAT 2024, NIPER 2022, NIPER 2023, NIPER 2024
6. What is an isosbestic point? TNMGRMU Dec 2021, GPAT 2021, NIPER 2021
7. Write two applications of fluorimetry.* TNMGRMU May 2024, GPAT 2024, NIPER 2024
8. Define luminescence and give one example. TNMGRMU Dec 2021, GPAT 2021, NIPER 2021
9. Mention two radiation sources used in UV-Visible spectroscopy.* TNMGRMU Oct 2022, GPAT 2022, NIPER 2022



SNS COLLEGE OF PHARMACY AND HEALTH SCIENCES

Sathy Main Road, SNS Kalvi Nagar,
Saravanampatti Post, Coimbatore - 641 035,
Tamil Nadu.



10. What is the advantage of a photomultiplier tube in UV spectroscopy? TNMGRMU Oct 2022, GPAT 2022, NIPER 2022