

PARUL UNIVERSITY
FACULTY OF PHARMACY
B.Pharm. Winter 2018-2019 Examination

Semester: 7

Subject Code: 08101402

Subject Name: Pharmaceutical Analysis III

Date: 28/11/2018

Time: 10:00 am to 1:00 pm

Total Marks: 75

Instructions:

1. Figures to the right indicate full marks.
2. Make suitable assumptions wherever necessary.

Q.1 Essay type Questions. (Any 2 out of 3) (10 marks each) (20)

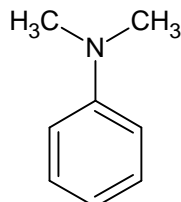
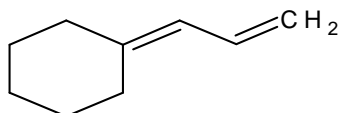
1. State Beer's Lambert's law. Derive the equation for Beer's Lambert's law and describe various factors affecting deviations from Beer's Lambert's law.
2. Draw labeled diagram of Mass spectrometer and explain its working principle.
3. Explain different types of vibrations in IR spectroscopy. Discuss in detail about factors affecting vibrational frequencies.

Q.2 Short Essay type Questions. (Any 7 out of 9) (5 marks each) (35)

1. Explain the principle, working and advantages of FTIR.
2. Derive simultaneous equation for simultaneous estimation method for binary dosage form in UV.
3. Explain rules of fragmentation in mass spectroscopy.
4. Enumerate detectors used in UV VIS spectrophotometer. Add a note on monochromators.
5. Explain basic principle and origin of NMR spectroscopy.
6. Write a note on Calibration of UV – VIS spectrophotometer.
7. Write a short note on Isotopic dilution method.
8. Define chemical shift. Explain in brief factors affecting chemical shift.
9. Write difference between UV and IR spectroscopy.

Q.3 Answer in short. (2 marks each) (20)

1. Enumerate Ionization techniques in Mass spectroscopy.
2. Why TMS is used as reference compound in NMR?
3. Define: (i) wave number, (ii) frequency
4. What do you mean by Scintillation? What is the use of scintillation counter?
5. How to distinguish aldehyde and ketone from IR spectra?
6. Define Bathochromic shift and Hypsochromic shift.
7. Comment on followings with explanation.
 - (1) Parent ion peak in mass spectra is peak of highest mass to charge ratio.
 - (2) $\sigma \rightarrow \sigma^*$ transition required higher energy.
8. Define: (i) EMR (ii), wavelength
9. Calculate λ_{\max} using Woodward & Fieser's rule:
 - (i)
 - (ii)



10. A solution of paracetamol using cell of 1 cm path length gave absorbance (A) = 0.211 at 257 nm, calculate microgram of drug per ml of the solution. (specific absorbance of the drug = 715)