

**BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE**  
**Pilani-333031. Rajasthan**  
**First Semester 2023-24**

**Mid-semester Examination (Closed Book)**

Course Name: Modern Pharmaceutical Analytical Techniques      Course No: PHA G540

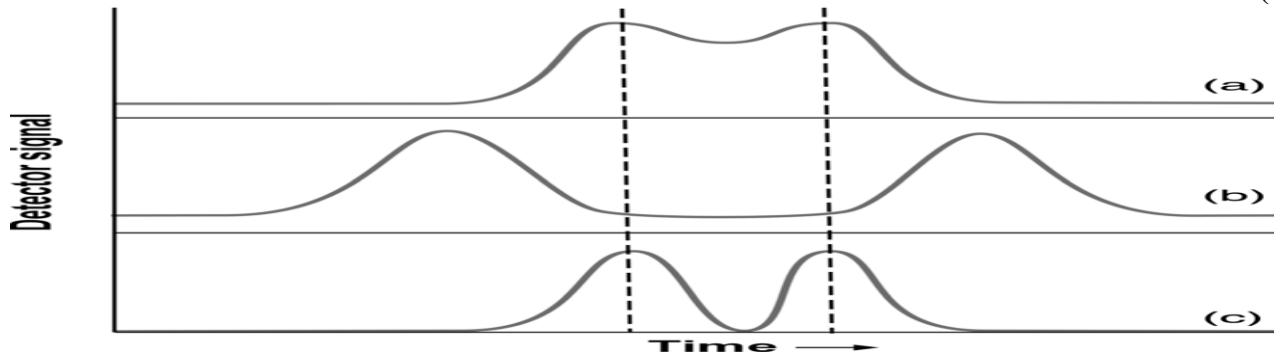
Marks: 30

Time: 90 Min

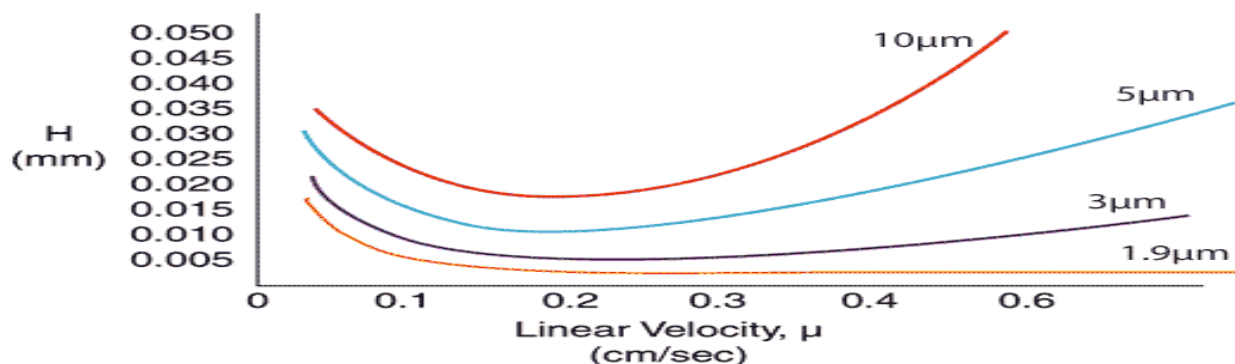
**Note:** Answer for all questions precisely with appropriate illustrations if required.

Give the answer for all sub-parts together in one place.

- 1) a) How will you prepare / pre-treat the given sample of sevoflurane (volatile GA) for appropriate analysis and estimate the content of the same indirectly. (2X3=6)  
b) How will you classify the analytical techniques according to the measurement data produced. Explain
  
- 2) a) Write a note on widely used modern selective liquid sample preparation technique. (2X3=6)  
b) Explain about common methods of calibration in any instrumental analysis.
  
- 3) a) How will you classify chromatography based on holding the stationary phase? Enumerate a note on high-resolution medium pressure bio-chromatography? (2X3=6)  
b) Write a brief account on OPLC and PEC.
  
- 4) a) Write the roadmap for the analytical method development of given non-polar compounds using HPTLC.  
b) Comment on the following chromatogram with justification, assume column, flow rate and temperature are constant. (2X3=6)



- 5) a) Write your comments with justification correlating the parameters for the given graph. (3X2=6)



- b) A 14 g of impure ketamine is dissolved in 100 ml of water and it's observed optical rotation determined using 10 cm cell at 25 ° C is -1.28 °. Calculate the percent by weight (% purity) of ketamine in the sample. Specific rotation of ketamine is -12.79 °.
- c) W.r.t IR, comment on the following,
  - i) Effect of conjugation on the frequency of C=O absorption.
  - ii) Impact of Hydrogen bonding on the absorption frequency of carbonyl group.