

**VPM's Advanced Study Centre**  
C/o. B. N. Bandedkar College of Science, Thane.  
**Post Graduate Diploma in Applied Analytical Chemistry**  
**Re - Examination 2008-2009**  
**Paper – II (100 Marks)**      5.00 – 8.00 p.m.

26.06.2009

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**SECTION – I**

Note: 1) Answers to the two sections are to be written in separate answer sheet.  
2) Solve any 5 (five) questions from each section.

- Q.1) Write Notes on ANY TWO of the following 10  
a) Detectors used in GC.                      b) Detectors used in HPLC.  
c) Advantages of HPLC over GC.          d) Applications of GC.  
e) Sampling techniques in IR spectroscopy.
- Q.2) Explain briefly various modes of vibrations in IR Spectroscopy. 10
- Q.3) Explain basic principle and working of GC with neat diagram. 10
- Q.4) Explain applications of IR spectroscopy; How will you do qualitative and quantitative analysis by IR spectroscopy. 10
- Q.5) What is band broadening in Chromatography? How it affects number of theoretical plates? How it can be minimized. 10
- Q.6) Explain briefly basic principle of HPLC with the help of neat diagram. 10
- Q.7) Answer **Any Two** Briefly: 10  
a) Explain briefly various components used in IR spectroscopy.  
b) What is meant by finger print region, what are its uses?  
c) Define Chromatography, what is meant by GC and HPLC.

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**SECTION II**

- Q.1) Write Notes On **Any Two** 10  
a) Interferences in flame photometry.  
b) Various detectors in uv visible spectroscopy.  
c) Applications of AAS.
- Q.2) Attempt **Any Three**: 10  
a) Write principal and series of events taking place in flame photometry  
b) Write important applications of uv visible spectroscopy.  
c) Hollow cathode lamp.  
d) Burners in flame photometry.
- Q.3) Answer **Any One** Briefly : 10  
1. Explain the Principle, working of double beam spectrophotometer.  
2. Describe in brief Nuclear Magnetic Resonance Spectrophotometer.  
3. What information can be obtained from NMR absorption peaks?
- Q.4) Discuss principle & working of AAS with schematic diagram. 10
- Q.5) What are DSC and TGA? Explain working of DSC with neat diagram. 10
- Q.6) What is Finger Print Region.? Describe the Shielding And De-Shielding effect involved in NMR spectroscopy. 10
- Q.7) Write the position of peaks of NMR spectroscopy for the following: 10  
a) p-nitrophenol    b) p-nitrobenzoic acid