Vidya Prasarak Mandal's

ADVANCED STUDY CENTRE

C/o. B.N.Bandodkar College of Science, Thane.

POST GRADUATE DIPLOMA IN APPLIED ANALYTICAL CHEMISRTY

(1st Sem. Examination 2006-2007)

Date: 22.12.2006 **PAPER- II** Marks: 50

Note: Illustrate your answers with neat sketches, wherever necessary.

Q.1) Attempt any Three of the following: **15**

a) Define Infra-red Spectroscopy. Describe the various molecular vibrations in the technique. What is the major requirement for infra-red absorption?

b) Describe in brief nuclear magnetic resonance spectrophotometer. What information can be obtained from the NMR absorption peaks?

c) Explain the principle and working of double beam spectrophotometer.

d) Draw a schematic diagram of Gas Chromatography. Explain in brief the function of each component of G.C.

e) Name the types of columns used in G.C. What do you mean by reverse phase and normal phase chromatography in HPLC?

Q.2) Attempt any Four of the following: **20**

a) What is chemical shift? Why tetra methyl silane (TMS) is used as reference standard in NMR?

b) What are the advantages and limitations of Gas Chromatography?

c) Discuss the important applications of UV Visible Absorption Spectroscopy.

d) Give the comparison between GC and HPLC.

e) What is finger print region? Describe the shielding and de-shielding effects involved in NMR spectroscopy.

Q.3) Write note on any Three of the following: **12**

a) Detectors used in HPLC
b) Thermal conductivity detector
c) Flame ionization detector
d) Various detectors in UV visible spectrophotometer
e) Role of calibration of instruments in UV visible spectrophotometer

Q.4) Write the position of peaks in IR and NMR spectroscopy for the following compounds: **03**

a) p-nitrophenol
b) p-nitrobenzoic acid