

M.Sc. (Previous) (Applied Chemistry) Examination, Aug./Sept. 2010  
(Directorate of Distance Education)  
DEC. APP. CHEM. – 1.01 : ANALYTICAL AND SPECTROSCOPIC  
TECHNIQUES

Time : 3 Hours

Max. Marks : 85

- Note :* 1) Answer any **ELEVEN** subdivisions from Part – A,  
any **THREE** questions from Part – B and any **THREE**  
questions from Part – C.  
2) Marks are indicated at the **right** side.

PART – A

Answer any **ELEVEN** questions :

(11×2=22)

1. a) What is spectroscopy ?
- b) What is meant by hollow cathode lamp ?
- c) Distinguish between fluorescence and phosphorescence.
- d) What is absorbance ?
- e) Explain  $\lambda_{\text{max}}$ .
- f) What is an internal standard used in flame photometry ? Give an example.
- g) How do you differentiate an ester from a ketone by using IR Spectra ?
- h) What are the types of chromatography ?
- i) Explain Hooke's law.
- j) What is the importance of carrier gas ?
- k) What is degeneracy ?
- l) What are the differences between NMR and ESR ?
- m) Explain zero field splitting.
- n) What are the differences between TGA and DTA ?
- o) What is the internal standard used in NMR ?