	Utech
Name:	(4)
Roll No.:	To deposite the Samuel September 2 and September 2
Invigilator's Signature :	

## CS/B.Pharm/SUPPLE/SEM-8/PT-801/2010 2010

## PHARMACEUTICAL ANALYSIS

Time Allotted: 3 Hours Full Marks: 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

# GROUP – A ( Multiple Choice Type Questions )

 $1. \quad \hbox{Choose the correct alternatives for any $\it ten$ of the following:}$ 

 $10 \times 1 = 10$ 

- i) The wavelength of cosmic ray in metre is
  - a)  $10^{-14}$

b) 10<sup>-11</sup>

c)  $10^{-7}$ 

- d)  $10^{-6}$ .
- ii) C = O group in the IR spectroscopy is shown in the frequency region of
  - a)  $1700 \text{ cm}^{-1}$
- b)  $1200 \text{ cm}^{-1}$
- c) 1100 cm<sup>-1</sup>
- d)  $1000 \text{ cm}^{-1}$ .

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- iii) Bathochromic shift depends on
  - a) isolated double bond
  - b) conjugated double bond
  - c) thermal conductivity
  - d) absorption of light.
- iv) Gyromagnetic ratio is expressed as
  - a)  $2\pi/hl$

b)  $2\pi h/\mu l$ 

c)  $2\pi\mu/hl$ 

- d)  $2\pi/\mu hl$ .
- v) Interference filters are applicable for the analysis in
  - a) UV-visible spectroscopy
  - b) Mass spectrophotometer
  - c) Flame photometer
  - d) all of these.
- vi) Which of the vibrational changes occurs at lower frequency level in IR spectroscopy?
  - a) Bending vibration
  - b) Stretching vibration
  - c) Bending or stretching depending on the media.
- vii) ..... finger-print region is characteristic of the organic compounds.
  - a) 3000-1400 cm<sup>-1</sup>
- b) 1400-666 cm<sup>-1</sup>
- c) 2100-1600 cm<sup>-1</sup>
- d)  $2800-1400 \text{ cm}^{-1}$ .
- viii) In mass spectra the most intense peak is the
  - a) base peak
  - b) rearrangement peak
  - c) fragmention peak
  - d) none of these.

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- ix) Xenon arc lamp is the source of light in
  - a) Spectrofluorometer
- b) IR spectrophotometer
- c) Flame photometer
- d) all of these.
- x) Number of NMR signals signifies
  - a) Electronic environment of each kind of proton
  - b) Different kinds of proton
  - c) Environment of proton with respect to other nearby proton
  - d) none of these.
- xi) The unit of chemical shift is
  - a) nanometer
- b) fresnel

- c) ppm d)
- Hz.

#### **GROUP - B**

#### (Short Answer Type Questions)

Answer any *three* of the following.

- $3 \times 5 = 15$
- 2. What is the principle of EIMS ( Electron Impact Mss Spectrometer )?
- 3. Write in detail about Photo Multiplier Detector.
- 4. What are the differences between the Traditional IR and FTIR?
- 5. Write a note on cathode lamp.
- 6. Write the principle of Flame ionization spectroscopy.

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## (Long Answer Type Questions)

Answer any three of the following.



- 7. Write a short note on the principle of Fluorometry. What are the advantages of Fluorometry over UV-visible spectroscopy? Write a note on the applications of Fluorometry. 7 + 3 + 5
- 8. Write a note on the instrumentations of IR spectroscopy.
- Derive Beer-Lambert's law. Write a note on deviation from Beer-Lambert's law. Explain the function of various filters and grating monochromator in UV-spectroscopy. 5 + 3 + 7
- 10. a) The number of NMR signals tells us what?
  - b) The position of NMR signals tells us what?
  - c) The intensity of NMR signals tells us what?
  - d) The splitting of NMR signals into several peaks tells us what?
  - e) Write a short note on shift.  $3\frac{1}{2}$
  - f) Derive Beer-Lambart's law. 5
  - g) How to distinguish between Hydroxyl group and amino group through IR spectroscopy ?  $2\frac{1}{2}$

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