	Utech
Name :	A
Roll No.:	A place (y x makely and toolse)
Invigilator's Signature :	

# CS/B.Pharm/SEPARATE SUPPLE/SEM-8/PT-801/2011 2011

## 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. Choose the correct alternatives for the following:

 $10 \times 1 = 10$ 

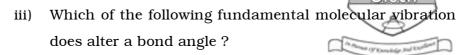
- i) Which of the following transitions is the highest energy transition?
  - a)  $n \text{ to } \sigma^*$
- b)  $n \text{ to } \pi^*$

c)  $\pi$  to  $\pi$ \*

- d)  $\sigma$  to  $\sigma^*$ .
- ii) How do you turn a signal recorded in the time domain into a frequency domain signal?
  - a) Fourier transformation
  - b) Measurement of peak areas
  - c) By use of Michelson interferometer.

SS-252 [ Turn over





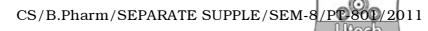
- a) Antisymmetrical stretching
- b) Scissoring
- c) Rocking
- d) Wagging.
- iv) Due to coupling with n adjacent non-equivaent protons, number of lines in coupling pattern is equal to
  - a) n

b) n-1

c) n-2

- d) n + 1.
- v) Which of the following analytical procedure does not directly employ electromagnetic spectrum?
  - a) UV-VIS spectroscopy
- b) Mass spectrometry
- c) NMR spectroscopy
- d) Raman spectroscopy.
- vi) When radiation energy is absorbed by a spin  $\frac{1}{2}$  nucleus in a magnetic field, what happens?
  - a) The precessional frequency of the nucleus increases
  - b) The nucleus spins faster
  - c) Angle of precession flips so that the magnetic moment of nucleus opposes the field
  - d) none of these.

SS-252



- vii) Chemical shift parameter is used in
  - a) NMR spectroscopy
- b) Mass Spectrometry
- c) IR spectroscopy
- d) All of these.
- viii) Which of the following compounds is most likely to have its base peak at m/z = M-43?
  - a) Alkenes
- b) Cycloalkanes
- c) Alcohols
- d) Alkyl iodides.
- ix) Retention factor (Rf) in chromatography is used for
  - a) quantitative purpose
- b) qualitative purpose
- c) preparative purpose
- d) none of these.
- x) As solvent polarity is increased  $\pi$  to  $\pi$  \* transitions undergo
  - a) bathochromic shift
- b) hypsochromic shift
- c) hyperchromic shift
- d) both (a) & (c).

#### **GROUP - B**

### (Short Answer Type Questions)

Write short notes on any three of the following.

 $3 \propto 5 = 15$ 

- 2. Deviation of Beer's law.
- 3. Identification of functional groups by IR spectroscopy.
- 4. Flame photometry
- 5. a) Bathochromic shift
  - b) Hypsochromic shift.
- 6. Positive and negative quenching.

SS-252

3

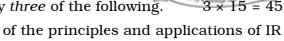
[ Turn over

# CS/B.Pharm/SEPARATE SUPPLE/SEM-8/PT-801/20



## (Long Answer Type Questions)

Answer any three of the following



5

- 7. Write an account of the principles and applications of IR a)  $7\frac{1}{2}$ spectroscopy.
  - Write an account of the principles of flourimetry and its b) applications.
- Explain the various transition states of electrons 8. a) involved in UV-VIS spectroscopy.
  - Derive the formula for Beer-Lambert's law. 5 b)
  - Give a neat sketch of double beam spectrophotometer. c)

4

- 9. Write an account of the factors influencing flourimetry. a)
  - Write an account of the principles of NMR spectroscopy b) with neat diagram. 5
  - Write down the applications of NMR spectroscopy. 5 c)
- 10. Write short notes on any three of the following:  $3 \times 5$ 
  - Total Quality Management (TQM) a)
  - Factors affecting UV-VIS spectra b)
  - c) Radio immuno assay (RIA)
  - Spin Spin coupling in NMR d)
  - Factors affecting fluorescence. e)
- 11. a) the differences between Write fluorescence and phosphorescence. 6
  - Describe the different types of detectors used in b) flourimeter.

SS-252