



SB-1174

Fourth Year B. Pharm Examination

March / April – 2011

PH 404 : Pharmaceutical Analysis II

(Instrumental & Quality Assurance)

Time : Hours]

[Total Marks : 70

Instructions :

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| नीचे दृष्टावेक निशानीवाणी विगतो उत्तरवडी पर अवश्य लपवी. Fillup strictly the details of signs on your answer book. | Seat No. : |
| Name of the Examination : | <input type="text"/> |
| FOURTH YEAR B. PHARM | <input type="text"/> |
| Name of the Subject : | <input type="text"/> |
| PH 404 : PHARMACEUTICAL ANALYSIS II | <input type="text"/> |
| Subject Code No. : <input type="text"/> 1 <input type="text"/> 1 <input type="text"/> 7 <input type="text"/> 4 | Section No. (1, 2,.....): <input type="text"/> Nil |
| Student's Signature | |

SECTION - I

- 1 (a) Differentiate between : (any two) 4
- (i) Isocratic and Gradient elution.
 - (ii) Molecular ion peak and Base peak in MS
 - (iii) Absorbance and Absorptivity.
- (b) Attempt any three of the following : 6
- (i) What is the role of Quality circles in successful implementation of TQM in business organizations ?
 - (ii) Why specificity is considered as a vital validation parameter for identification tests ?
 - (iii) Convert the following absorbance data to transmittance and % transmittance :
 - (a) 0.059
 - (b) 0.321
 - (iv) Calculate λ -max of o-bromo benzaldehyde and p-amino benzoic acid by Woodward Fieser rule.

- 2 Attempt any **four** of the following : 16
- (i) Explain principle of RIA. State its applications.
 - (ii) Enlist the factors influencing vibrational frequencies in Infrared Spectrophotometry and explain any two.
 - (iii) Discuss applications of DTA and DSC.
 - (iv) Explain with a labelled diagram the working of Dropping Mercury Electrode (DME).
 - (v) Explain the principle of Ion exchange chromatography. Which ion exchanger (SP) would you use for a strongly basic analyte ? What mobile phase pH range would result in its (i) capture/retention (ii) release/elution ?
 - (vi) Explain McLafferty rearrangement and Ring rule in Mass Spectrometry.
- 3 Answer any **three** of the followings : 9
- (i) What are the advantages of ^{13}C NMR over ^1H NMR ?
 - (ii) Explain the principle of flame photometry and state its limitations.
 - (iii) Give the characteristic absorption bands in the IR spectra of benzyl alcohol..
 - (iv) Explain the following terms in Affinity chromatography : Spacer arm, Ligand, Matrix.
 - (v) Explain working of Katharometer with a labelled diagram.

SECTION - II

- 4 Explain the following terms : (any **eleven**) 11
- (i) Wavenumber
 - (ii) Auxochrome
 - (iii) Quenching
 - (iv) Stokes shift
 - (v) Forbidden transition
 - (vi) Robustness

- (vii) Range
- (viii) Specific rotation
- (ix) Quality control
- (x) LOQ
- (xi) Laser ablation
- (xii) Atomization
- (xiii) Indicator electrode
- (xiv) SOP
- (xv) Monochromator.

5 Attempt any **three** of followings : **12**

- (i) What is Plasma ? Explain working of Direct current plasma source with a labelled diagram.
- (ii) Draw and explain Jablonski diagram.
- (iii) Discuss the factors affecting the current-voltage curves in polarography with the help of Ilkovic equation.
- (iv) Discuss the prominent peaks in the mass spectrum of 1-butanol and 2-butanol.
- (v) How many signals would you expect in the NMR spectrum of following compounds ?
 - (a) 1-propyl bromide
 - (b) α -bromo butanoic acid
 - (c) 2,3-dibromopropene
 - (d) p-anisidine

6 Answer any **two** of the followings : **12**

- (i) What is chemical shift ? Discuss the factors affecting chemical shift with suitable examples.
- (ii) What is column efficiency ? What do you mean by zone broadening ? Discuss the kinetic variables affecting one broadening.
- (iii) Explain the theory of IR absorption spectrometry and discuss types of molecular vibrations.