Total No. of Questions : 6]

SEAT No. :

P2012

[Total No. of Pages :2

[5145]-803
Final year B. Pharmacy
PHARMACEUTICAL ANALYSIS - VI
(2013 Pattern) (Semester-VIII)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Neat labeled diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***

SECTION-I

Q1) Answer the following (Any one) **[10]**

Discuss the principle of ^{1}H-NMR. Compare ^{13}C-NMR vs ^{1}H-NMR.

OR

Discuss principle, instrumentation and application of Capillary electrophoresis.

Q2) Answer the following (Any five) **[15]**

a) Pascal triangle for signal splitting in proton NMR.
b) Give exceptions to n+1 splitting rule with suitable examples.
c) What is Nuclear Overhauser Effect (NOE)?
d) Give Principle of Electron Spin Resonance.
e) Differentiate between Acetone, Acetaldehyde and Ethyl methyl ether by ^{1}HNMR.
f) What is Chemical shift in proton NMR?
g) How will you correlate spin quantum numbers with total no.of spin state?

Q3) Write short note on (Any two) **[10]**

a) Spin-Spin Coupling (Splitting)
b) Double resonance Technique
c) Principle and Applications of Ion exchange chromatography
d) Relaxation mechanisms in proton NMR.

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SECTION-II

Q4) Answer the following (Any one) **[10]**

What are the properties required for ideal detector in HPLC. Explain the principle and use of RI, ELSD and UV detector.

OR

Discuss the developments in ionization techniques. Give principle and working of ESI and MALDI techniques in mass spectrometry.

Q5) Answer the following (Any five) **[15]**

a) Area normalization technique for quantification in column chromatography

b) Molecular ion

c) TOF mass analyzer

d) Peak tailing and peak asymmetry factor

e) Differentiate HPLC and UPLC on basis of particle size, column dimensions and flow rate.

f) Mclafferty Rearrangement

g) Degassing techniques in HPLC.

Q6) Write short note on (Any two) **[10]**

a) LC-MS

b) Electron impact ionization in mass spectrometry.

c) Discuss Receprocating pump in HPLC.

d) Field free regions in mass spectrometry and formation of metastable ion.

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