

**Hemchandracharya North Gujarat University, Patan**  
**Bachelor of Vocation**  
**Pharmaceutical Chemistry**  
**Semester VI End Term Examination, May, 2017**  
**PC 613 (Advanced Analytical Chemistry IV)**

Time: 2 hrs

Date: 03/05/2017

Maximum marks: 50

**Q.1 Answer all questions. Each question carries 01 mark**

**(9\*1=9 Marks)**

1. In occlusion, the ionic properties get trapped within crystals. (True/False)
2. Which filters are used in filtration of precipitates?
3. Give names of any two organic precipitants?
4. The value of TMS protons (in NMR) in  $\delta$  scale is \_\_\_\_  
(a) 10            (b) 0            (c) Not predictable            (d) -10
5. \_\_\_\_ is used as an internal standard in NMR?
6. How many NMR signals are obtained in  $\text{CH}_3\text{CCl}_2\text{CH}_3$ ?
7. In mass spectrometry, the base peak is:  
(a) Farthest to the right of the plot            (b) Farthest to the left  
(c) Tallest peak            (d) Peak preceding the isotope peaks
8.  $^{35}\text{Cl}$  and  $^{37}\text{Cl}$  exist in the ratio of \_\_\_\_
9. The molecular ion will appear at even valued mass if the molecule has \_\_\_\_ number of nitrogen ions.

**Q.2 Answer any 5 questions. Each question carries 04 marks**

**(5\*4=20 Marks)**

1. Write a short note on chemical shift?
2. Give information about solubility product in precipitation?
3. Describe spin – spin splitting in NMR?
4. Explain parent ion or molecular ion peak in detail?
5. How filtration process is performed in precipitation? Explain.
6. Discuss about principle of mass spectroscopy?

**Q.3 Answer any 3 questions. The question carries 07 marks**

**(3\*7=21 Marks)**

1. Describe instrumentation of mass spectrometer in detail?
2. Explain (a) Inclusion  
(b) Surface Adsorption.
3. Discuss about the principle of NMR in detail? Give information about TMS used in NMR?
4. Give detailed information about organic precipitants?