

# Rajiv Gandhi University of Health Sciences

## First Semester M. Pharm Degree Examination - 09-Jan-2020

**Time: Three Hours**

**Max. Marks: 75 Marks**

### **Modern Pharmaceutical Analytical Techniques**

**Q.P. CODE: 5101**

Your answers should be specific to the questions asked.  
Draw neat, labeled diagrams wherever necessary.

#### **LONG ESSAY (Answer any Three)**

**3 X 10 = 30 Marks**

1. Explain the instrumentation of NMR spectroscopy. Add a note on spin-spin splitting and spin-spin coupling with suitable examples. (6+4)
2. Describe the theory of mass spectrometry and instrumentation of Mass spectrometry. (5+5)
3. Discuss in detail about the chromatographic efficiency parameters with relevant equations.
4. With the help of a neat diagram explain the luminescence process. Explain the molecular vibrations in IR. Give the equations to calculate the possible number of vibrations in linear and non-linear molecule. (4+3+3)

#### **SHORT ESSAY (Answer any Nine)**

**9 X 5 = 45 Marks**

5. Draw the schematic diagram of atomic absorption spectroscopy and add a note on hollow cathode discharge tube.
6. Add a note on flame and electro-thermal atomization.
7. Define electrophoresis. Write a note electrophoretic mobility.
8. Explain the principle advantages and requirements of Radio Immuno Assay.
9. Add a detail note on Bravais lattice types and Miller indices.
10. Brief note on column chromatography and its applications.
11. Describe the rules for fragmentation of molecules in MS with suitable examples.
12. Explain shielding and de-shielding effect with suitable examples. What is spin-spin decoupling? Explain any two methods of decoupling.
13. Discuss the different development and visualization techniques in TLC.
14. Discuss the principle and procedure of immune electrophoresis and isoelectric focusing technique.

\* \* \* \* \*