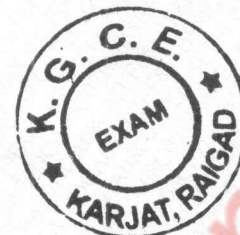


(3 Hours)

(Total Marks: 80)

Please check whether you have the right question paper.

- N.B.:
- 1) Question number 1 is compulsory.
 - 2) Attempt any three questions from the remaining.
 - 3) Figures to the right indicate full marks.



1. Answer the following: - [20]
 - (a) Explain the block diagram of Analytical Instrument.
 - (b) Comment on Resolution of Mass Spectrometer.
 - (c) Explain in brief the principle of paramagnetic oxygen analyser.
 - (d) Explain the terms: (i) Chemical Shift (ii) Chromatograph & Chromatogram.

2. (a) State Beer – Lambert Law. Prove that $A = abc$. [10]
 - (b) Explain the instrument of NMR with the aid of a neat sketch. [10]

3. (a) With neat schematic diagram, explain the working of GM Counter. [10]
 - (b) With a diagram, explain the Atomic absorption spectroscopy. [10]

4. (a) What is Half Life Period? [10]

If the half life period of 100 grams of a radioactive isotope is 8 years, how many grams will remain in 32 years?

 - (b) List the parts of GC. Draw and explain the working of Gas chromatograph. [10]

5. (a) Explain the phenomenon of Raman and Rayleigh scattering. [10]

With neat block diagram, Explain laser based of Raman Spectrometer.

 - (b) Explain Time of Flight Mass Spectrometer with neat diagram. [10]

6. Write Short Note on: - [20]
 - (a) Difference between Packed Column and Tubular Column.
 - (b) Photomultiplier tube
 - (c) Single beam Filter Fluorimeter.
 - (d) Difference between Filters and Monochromators.