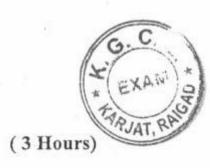
2NST/ VI / Analytical Fashoument sion



INST 09/06/15

QP Code: 5087

[Total Marks: 80

N.B.	:	(1)	Question	No.1	is	compulsory.

- (2) Answer any three questions from the remaining five questions.
- (3) Assume suitable data wherever necessary.

1. Answer t	he fol	lowing
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- (a) Compare classical and Instrumental techniques of chemical analysis.
- (b) Why is column temperature so critical in GC?
- (c) List any 4 characteristic properties of Raman lines.
- (d) State Beer-Lambert's law and justify it as a limiting law.
- (e) Determine resonance frequency of proton in $H_0 = 14092$ G: $I = \pm 1/2$; $\mu = 1.41 \times 10^{-30}$ IG+ and $h = 6.626 \times 10^{-34}$ J sec.
- (a) With a neatdiagram explain the working of Single beam UV-VIS 10
 Spectrometer.
 - (b) Explain in detail the concept of Fluorescence and Phosphorescence. 1 State the factors that influence Fluorescence. Also explain the working of Double beam Filter Fluorometer with neat diagram.
- 3. (a) Describe working and application of GM counter with neat diagram, 10
 - (b) Explain in detail working of Atomic Absorption Spectrometer with 10 neat diagram.
- 4. (a) What is meant by Raman effect? Draw and explain the construction 10 of Raman spectrometer with applications.
 - (b) Explain the working of Gas Chromatograph with a neat diagram. Also 10 state its applications.
- (a) Explain the basic working principle of Mass spectroscopy. Also with 10
 a neat diagram explain principle and working of Time of Flight Mass
 Spectrometer.
 - (b) Explain the concept of Nuclear Magnetic Resonance. With a neat 10 diagram explain in brief NMR spectrometer.

6. Write short notes on

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- (a) Monochromators
- (b) Chemical shift in NMR
- (c) X-ray tube
- (d) Oxygen analyzers