

APOLLO

Qualitative analysis (Mass Spectrometry)

FBISE Chemistry Class 12 (HSSC-II)

Domain F: Empirical Data Collection and Analysis

13 questions | questions

Original FBISE question crops. National Curriculum 2022-23 topic.

OR	An unknown organic compound has a strong absorption band around 1700 cm^{-1} in its IR spectrum. What functional group is likely present? Suggest a possible structure if its molecular formula is $\text{C}_3\text{H}_6\text{O}$.	03
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(ix)	How can ethanol and acetone be differentiated using I.R spectroscopy specifically through characteristic signals?	03
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OR	Identify any three types of electronic transitions that occur when acetone molecules are subjected to ultra violet radiations.	03
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	Write any three applications of atomic emission spectroscopy.	
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Q.4	What is mass spectrometry? Explain its construction and working.	2+5
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	What is molecular ion peak? State its symbol and write its importance.	
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	Write principle of IR spectroscopy? Enlist any one application of IR spectroscopy.	
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(xii)	A mass spectrum shows M^+ peak = 100% and $(M+1)$ peak = 5.5%. Calculate the number of carbon atoms in the molecule.	
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The base peak in a mass spectrum corresponds to the:	Molecular ion	Hydrogen bonding	Heaviest fragment	Most stable ion
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Identify the functional groups (type of bond) corresponding to the following IR absorption bands: 3300–3500 cm ⁻¹ , 1700–1725 cm ⁻¹ , and 1050–1150 cm ⁻¹ .	1x3
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(xii) Differentiate between molecular ion peak and base peak in mass spectrometry .	1.5 + 1.5
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environment.	
OR Compare the UV absorption of cyclohexene and 1,3-butadiene and explain the difference in terms of conjugation. (Exact range of UV radiations is not required).	03

8. Which one of the following technique does not involve interaction of electromagnetic radiations with matter?
- A. IR spectroscopy B. NMR spectroscopy
C. Mass spectroscopy D. UV spectroscopy