

2020

CHEMISTRY — HONOURS — PRACTICAL

Paper : CC-12P

(Organic Chemistry)

Full Marks : 30

*The figures in the margin indicate full marks.*

1. Carry out the analysis of the supplied  $^1\text{H-NMR}$  and IR spectra (marked  $S_p$  and  $S_I$ ) and record the following in tabular form :

[A] For  $S_p$  :

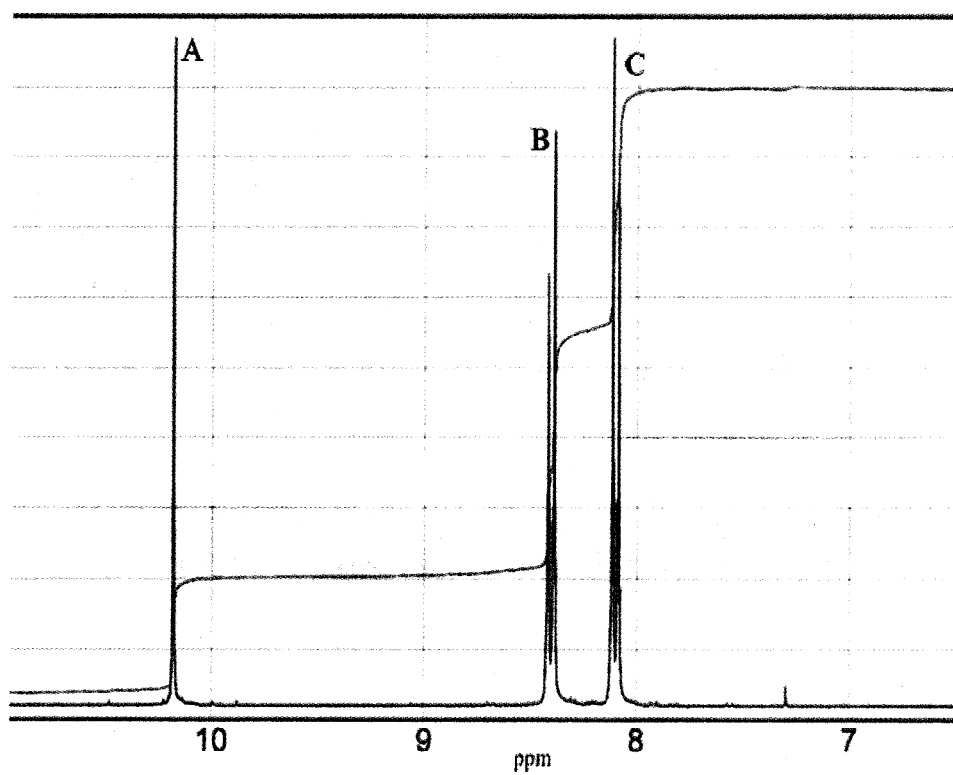
- Identify each of the given signals marked **A**, **B** and **C** (which  $\delta$ -value corresponds to which).
- Assign the relevant protons responsible for each of the marked signals.
- Mention the splitting pattern of each of the marked signals.
- Mention the number of proton(s) associated with each of the marked signals.
- Provide brief explanation for relative  $\delta$ -values and splitting patterns of the marked signals.

3+3+3+3+6

[B] For  $S_I$  :

- Identify each of the given signals marked **D**, **E**, **F** and **G**.
- Assign the relevant bond vibrations responsible for each of the marked bands.
- Mention the nature of each of the marked bands.
- Provide brief explanation for relative frequencies of the absorptions of the marked bands.

2+4+2+4

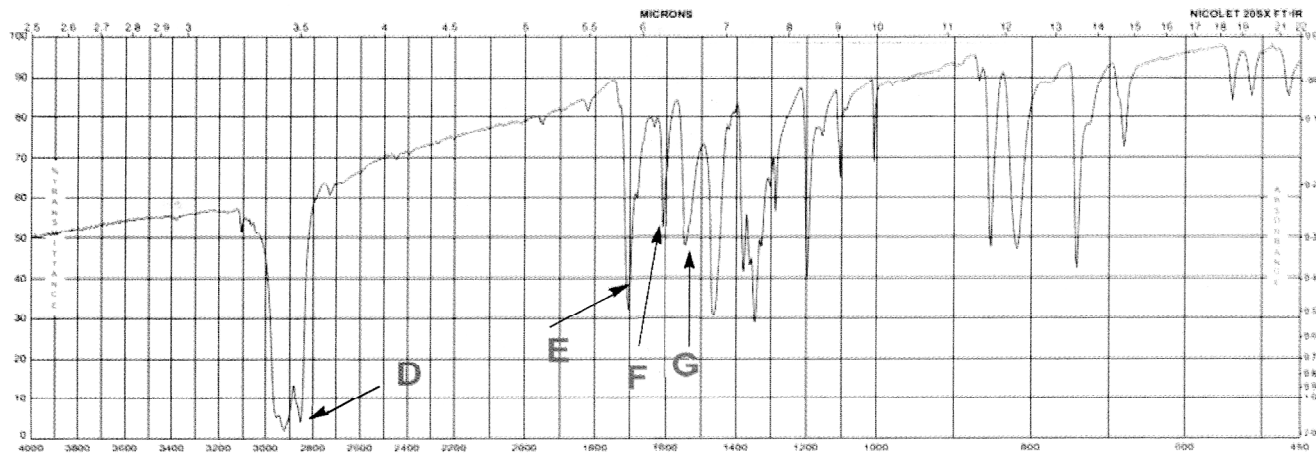


<sup>1</sup>H-NMR Spectrum (S<sub>p</sub>) of 4-nitrobenzaldehyde

δ (in ppm) : 10.17, 8.42 and 8.10

(3)

T(5th Sm.)-Chemistry-H/Pr./CC-12P/CBCS



IR Spectrum (S<sub>1</sub>) of 4-nitrobenzaldehyde