

## U.G. 6th Semester Examination - 2021

## CHEMISTRY

[HONOURS]

Course Code : CHEM-H-CC-P-14

(Organic Chemistry)

[PRACTICAL]

Full Marks : 20

Time : 2 Hours

*The figures in the right-hand margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.*Answer any **four** questions from the following: 5×4=20

1. What is paper chromatography? How it is different from TLC? What is the procedure of separation of amino acids by using paper chromatography?

1½+1½+2

2. What do you mean by stationary phase and mobile phase in column chromatography? What are the pigments available in spinach? What is the role of mobile phase in dyes stuff separation in column chromatography?

2+1+2

3. What is  $R_f$  value? A sample contains three components A, B and C. In TLC, if component A travels 1.5 cm, B travels 2.0 cm, C travels 3 cm and solvent front travels 6.0 cm, then which component is more polar? What is the stationary phase in TLC?

2+2+1

[Turn over]

4. a) Mesityl oxide has the following characteristic IR bands

 $\bar{\nu}=2950\text{cm}^{-1}, 2850\text{cm}^{-1}, 1700\text{cm}^{-1}, 1620\text{cm}^{-1}$ 

Assign above IR bands in terms of stretching or bending vibration of bonds/functional groups of mesityl oxide with explanation. 2

b) Predict the characteristic IR bands of 2-hydroxy acetophenone. Does absorption frequency of hydroxy group change its position upon dilution. Explain. 1½+1½

5. Describe NMR spectrum of the following compounds, indicating approximate  $\delta$  values and splitting pattern of each kind of protons with explanation.

a) 4-methyl acetanilide

b) Pent-1-yn-3-ol 2½+2½

6. How will you distinguish between the following pairs by spectroscopy, as directed?

a) 3-Nitrobenzaldehyde and 4-Nitrobenzaldehyde (by NMR)

b) 4-Nitrobenzaldehyde and 4-Methoxy benzaldehyde (by IR) 2½+2½