THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1. Answer the following short questions.   (15x2=30)

I   What is the significance of Mark-Houwink equation?

II   What is basic principle of Raman Spectroscopy?

III   What is meant by n-π^* and σ-σ^* transitions.

IV   What is the origin of stokes and anti-stokes line in Raman Spectroscopy?

V   Which information is obtained about CO_2 molecule from Raman Spectroscopy?

VI   What is the significance of degree of polymerization?

VII   Mention the range of quartz UV and Visible region in nm.

VIII   What is Rayleigh scattering in Raman Spectroscopy?

IX   What is the principle of vapour phase Osmometry?

X   Why UV-Visible spectroscopy is also called as electronic Spectroscopy?

XI   Write two differences between addition and condensation polymerization.

XII   Explain co-polymerization with suitable example.

XIII   What is the role of polarizability in Raman Spectroscopy?

XIV   Why does conjugation shifts λ_{max} to longer wavelength?

XV   Write names of four methods used to measure average molecular weights of polymers.

Answer the following questions.

Q.2   What is principle of electronic transitions? Give different types of electronic   (10)
transitions.

Q.3   Discuss Osmometry for determination of average molar mass of high polymers.   (10)

Q.4   Write note on the following;

(a)   Stark effect   (5)

(b)   Spherical top molecules   (5)