

C.U.SHAH UNIVERSITY

Summer-2015

Subject Code :4SCO3CHE2 Subject Name: Chemistry-VI

Course Name: B.Sc

Date: 6/5/2015

Semester:III

Marks: 70

Time:02:30 TO 05:30

Instructions:

- 1) Attempt all Questions of both sections in same answer book/Supplementary.
- 2) Use of Programmable calculator & any other electronic instrument prohibited.
- 3) Instructions written on main answer book are strictly to be obeyed.
- 4) Draw neat diagrams & figures (if necessary) at right places.
- 5) Assume suitable & perfect data if needed.

SECTION-I

- Q-1 Define following terms.(All Questions are compulsory) (07)
- a) Raman effect (02)
 - b) Vibrational spectroscopy (02)
 - c) Spectroscopy (01)
 - d) Spectrometry (01)
 - e) Absorption (01)

- Q-2 Answer the following in detail. (14)
- a) Write a note on Absorption Spectroscopy. (05)
 - b) Discuss the Instrumentation of Infrared Spectroscopy in detail (05)
 - c) Write a note on in UV-Vis Spectroscopy (04)

OR

- Q-2 Answer the following in detail. (14)
- a) Write a note on fluorescence Spectroscopy (05)
 - b) Discuss the Raman Spectroscopy in detail (05)
 - c) Discuss types of stretching and bending vibrations (04)

- Q-3 Answer the following in detail. (14)
- a) Write a note on FTIR Spectroscopy (07)
 - b) Write a note on source of Fluorescence spectroscopy (07)

OR

- Q-3 Answer the following in detail. (14)
- a) Discuss the cell sampling techniques for UV-Vis Spectroscopy (07)
 - b) Write a note on source of UV-Vis spectroscopy (07)



SECTION-II

- Q-4 Define following terms.(All Questions are compulsory) (07)
- a) Electronic transition (02)
 - b) Fluorophores and fluoroionophores (02)
 - c) Detector (01)
 - d) Recorders (01)
 - e) Ionophores (01)

- Q-5 Answer the following in detail. (14)
- a) Write a note on Bathochromic and Hypsochromic shift with diagram (05)
 - b) Write a note on Jablonski Diagram (05)
 - c) Write a note on (04)
 - 1) Conjugative effect 2) Steric effect

OR

- Q-5 Answer the following in detail. (14)
- a) Discuss the Applications of Quenching (05)
 - b) Write a note on Resonance Energy Transfer (05)
 - c) Write a note on (04)
 - 1) Fluorescence Anisotropy 2) Fluorescence Lifetimes

- Q-6 Answer the following in detail. (14)
- a) Discuss and explain with diagram Electronic transition of $\sigma\text{-}\sigma^*$ and $n\text{-}\sigma$ (07)
 - b) What is quenching effect? Discuss the types of quenching (07)

OR

- Q-6 Answer the following in detail. (14)
- a) Discuss and explain with diagram Electronic transition of $\pi\text{-}\pi^*$ and $n\text{-}\pi^*$ (07)
 - b) What is optical spectroscopy? Discuss any one optical spectroscopy in detail (07)

