UG/Major/3rd Sem/IND/T/19

2019

Major 3rd Semester Examination

INDUSTRIAL CHEMISTRY

Paper - C 5-T

Full Marks : 40 Time : 2 Hours

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

Answer as per given instruction.

Group-A

1. Answer *any five* questions : 2×5=10

   (a) What is the objective of molecular Absorption Spectroscopy ? 2

   (b) What information can be obtained from IR Spectral measurement ? 2

   (c) What do you mean by Accuracy and precision ? 2

(d) Explain why ethylene and ethyne unlike propene and propyne have no carbon-carbon multiple bond stretching vibration. 2

(e) Explain why ethanol is a good solvent for UV measurement but not for IR ? 2

(f) Among acetone, diromo-ethane and acetaldehyde which shows single peak in PMR Spectrum ? 2

(g) What do you mean by standard deviation. 2

(h) Write the full form of ISO and ISI standard. 2

Group-B

2. Answer *any four* questions : 5×4=20

(a) Explain why change in dipole moment is essential for IR absorption. 5

(b) Describe different IR absorption bands displayed by saturated aldehyde and ketones. 5

(c) Using 60 MHz instrument (NMR), the chemical shift of a photon was found to be 170 Hz. What would be the chemical shift if a 40 MHz instrument is used ? 5

(d) Explain why methyl proton of 1 methyl cyclohexene appear at higher field (δ 1.80) than methyl proton of toluene (δ 2.30) ? 5

(e) Write down the working principle of atomic absorption spectroscopy. 5

(f) Write down the basic instrumentation with schematic diagram of UV-vis spectrophotometer. 5

Group-C

3. Answer *any one* question : 10×1=10

(a) Draw a neat diagram and explain the working principle of Flame photometer and its application. 6+2+2

(b) Draw a neat diagram and explain the working principle of electron spin resonance instrument. 6+2+2