

M.Sc.(Chem.) Semester - 2 (CBCS) Examination
May/June-2022 (NEW COURSE)
Analytical Chemistry(CORE)

Time: 2:30 Hours

Marks: 70

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate marks.

- Q1 (A) Answer the following questions** **04**
 1 Define error and explain positive and negative error with example.
- Q1 (B) Answer any two questions out of three** **10**
 1 Calculate mean, median and standard deviation and % relative standard deviation for following set of data.
 i) 14.5, ii) 14.8, iii) 13.5, iv) 15.3, v) 14.6
 2 Discuss Robustness and Ruggedness with suitable example
 3 Enlist method validation parameters and explain any one in detail.
- Q2 (A) Answer the following questions** **04**
 1 List the of types dissolution apparatus, its applications and factor affecting dissolution studies.
- Q2 (B) Answer any two questions out of three** **10**
 1 Give the principle, reaction and brief introduction of Karl fischer moisture analyser.
 2 Define density, how will you determine tap density of given sample? Which factors affects the bulk and tap density of powdered sample?
 3 State the reasons behind the high amount of ROI and write the step-to-step process to obtain ROI for given sample.
- Q3 (A) Answer the following questions** **04**
 1 Enlist 12 green principles
- Q3 (B) Answer any two questions out of three** **10**
 1 What are ionic liquids? Give its introduction and examples
 2 Explain following concepts of green chemistry with example
 (i) Use of safer solvents (ii) Reduction of derivatives
 3 Define the term atom economy, Calculate the atom economy for following reaction and give short review on result.
- The reaction shows cyclohexanone (a six-membered ring with a carbonyl group) reacting with a phosphonium salt, $\text{Ph}_3\text{P}^+\text{CH}_2^-$. The product is methylenecyclohexane (a six-membered ring with an exocyclic CH_2 group) and triphenylphosphine oxide ($\text{Ph}_3\text{P}=\text{O}$).
- Q4 (A) Answer the following questions** **04**
 1 Write the full forms of given abbreviations: a) WIPO, b) UPOV
 2 State classes of works for which copyright protections are obtained.
- Q4 (B) Answer any two questions out of three** **10**
 1 Introduce IPR and its types
 2 What is Paris Convention? State its principal features and advantages of joining the Paris Convention.
 3 Define the term Invention; What is not an “Invention” according to Section 3 of the Patent Act, 1970
- Q5 (A) Answer the following questions** **04**
 1 Define and introduce *in-vitro* and *in-vivo* studies.
- Q5 (B) Answer any two questions out of three** **10**
 1 Write principle, methodology, merits and demerits of Hemoglobin estimation by Cyanmethemoglobin Method.
 2 Give the principle and quantitative estimation method for Urine Glucose
 3 Write a note on Glucose estimation by GOD-POD method.
