

M.Sc.(Chem.) Semester - 2 (CBCS) Examination

March/April- 2018

ANALYTICAL CHEMISTRY

(CORE)

Time: 2:30 Hours

Marks: 70

Instructions:

1. All questions are compulsory.
 2. Figures to the right indicate marks.
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Q.1 Answer any **seven** of the following ten questions. (14)

1. Enlist the method validation parameter
What is significant figure? Find significant in the following data
 1. 0.00199
 2. 99.9
 3. 100
 4. 0.489
3. Explain hardness of water. Write the chemical reactions involved in its determination procedure.
4. Define the terms: Accuracy and Precision
5. What is particulate matter? How it emits? Give the name of collection method.
6. How will you analyze Na and K in water sample? How will you prepare 500 ppm Na and 300 ppm of K from NaCl and KCl.
7. Explain green chemistry with its importance.
8. Given the following set of weights 35.8, 35.0, 36.2 and 36.8 mg. Calculate the average deviation and average relative deviation.
9. Identify the given terms: Deviation and confidence interval.
10. What is phase transfer catalyst (PTC)? Explain with suitable example

Q.2 Answer any **three** of the following four questions. (14)

1. Briefly explain the 12 principles of green chemistry with examples.
2. Give detailed application of analytical chemistry.
3. Define the term ionic liquid. Discuss the function of ionic liquid with any two examples.
4. Explain F-Test and T-Test with their significance.

Q.3 Answer the following questions. (14)

1. Discuss in detail ozone depletion phenomena with reaction.
2. Answer the following questions.
 - a) Explain in detail: Effects of air pollution on living organism.
 - b) Write a note on water pollution.

OR

Q.3 Answer the following questions. (14)

1. Write a brief note on supercritical fluids
2. Analysis of a sample of magnesium gave the following % value for the magnesium content: 60.10, 60.21, 60.12, 60.09, 60.16, 60.14, 60.07, 60.14, 60.18 and 60.11.
Calculate the mean, standard deviation and coefficient of variance.

Q.4 Answer any **two of the following three questions. (14)**

1. What are uncertainties? Classify determinate errors? Explain each class with suitable example.
2. Give the importance of method validation. Explain the terms Robustness and Ruggedness .
3. Explain the function of dimethyl carbonate and polymer supported reagent.

Q.5 Answer any **two of the following four questions. (14)**

1. What are the alternate synthesis route of organic compounds? Give their name and discuss the PTC with any three reaction of organic synthesis.
2. How do you determine the value of DO and nitrite in water?
3. Discuss the following reactions by conventional and green chemistry procedure.
 - (i) Preparation of acetanilide
 - (ii) Bromination of trans-stilbene
4. How will you determine SO_x and NO_x by spectrophotometer ?
