PC-495
(534) M.Sc. CHEMISTRY (FOURTH SEMESTER)
Examination JUNE 2020
Compulsory/Optional
Group -A
Paper - IV
ANALYTICAL CHEMISTRY

Time:- Three Hours]   Maximum Marks : 80
                                                                          Minimum Passing Marks: 29

नोट :   दोनों खण्डों से निर्देशानुसार उत्तर दीजिए। प्रश्नों के अंक उनके दाहिनी ओर अंकित है।
Note: Answer From Both the Section as Directed. The Figures in the right-hand margin indicate marks.

Section -A

1.   Answer the following questions: -   **1X10 = 10**
     (a)   Write the name laboratory different types of analytical balances used in caboratory.
     (b)   What are co-precipitation and post-precipitation?
     (c)   Write the name of different types of errors which affect experimental results.
     (d)   Write down the properties of median.
     (e)   Give the name of common examples of adulterants mixed in food items.
     (f)   give the name of various migration parameters used in paper chromatography.
     (g)   Write the name of major catagories of sources of water pollution.
     (h)   What are causes of temporary and permanent hardness of water?
     (i)   Give the name of categories of solid fuels as per their classification.
     (j)   Grading of coal are done by which analysis? Give the name of analysis only.

2.   Answer the following questions:-   **2x5 = 10**
     (a)   Write the main chemical steps involved in quantitative precipitation in gravimetric
           analysis?
     (b)   Define and give the expression for Relative standard Deviation.
     (c)   What are the food standards? Describe the government's recommendations regarding food
           products.
     (d)   What are water pollutants? Write the name of major pollutants responsible for water
           pollution.
     (e)   Define the "calorific value" of a fuel. Give various units generally reemployed employed for
           calorific?

Section -B

Answer the following questions.   12x5 = 60
UNIT - I
3.   (a)   Give the classification of analytical methods, also mention the advantages and
           disadvantages of each method.
     (b)   Why calibration of glassware are necessary. Give the procedure of calibration of glassware.
                                          Or
     What do you know by the term "Analytical balance"? Give the types and explain about the single- pan
     balance.

4.   Explain how the minimisation of errors can be carried out.
                                          Or
     Write the methods for reporting of analytical data.

5.   (a)   How will you determine the percentage of fat in butter.
     (b)   How will you analyse the reducing sugar in Honey?
                                          Or
     How will you determine chlorinated pesticides in food product by thin layer chromatography?

6.   What do you understand by water pollution? Classify the types of water pollution.
                                          OR
     (a)   How will you determine the presence of ammonias and nitrate in water?
     (b)   How will you evaluate the BOD in a water sample?

7.   (a)   Describe the method of estimation of phosphorus in soil.
     (b)   Discuss the procedure of proximate analysis of coal.
                                          OR
     What do you mean by "flash- point" of a liquid fuel, Give its significance and method of determination by
     Abel's flash point apparatus?