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AG—239—2018

FACULTY OF SCIENCE

M.Sc. (Second Year) (Third Semester) EXAMINATION

NOVEMBER/DECEMBER, 2018

(Revised Course)

INORGANIC CHEMISTRY

Paper-XVIII (CH-534/1)

(Analytical Chemistry)

(Monday, 3-12-2018) **Time : 2.00 p.m. to 5.00 p.m.**

Time—Three Hours *Maximum Marks*—75

N.B. :— (*i*) Attempt *All* questions.

(*ii*) *All* questions carry equal marks.

1. Solve any *three* out of five : 15

   (*a*) State and explain the principle of thermogravimetry.

   (*b*) Discuss the salient features of Randle's Sevcik equation.

   (*c*) What are different sources of water pollution ?

   (*d*) How will you determine the total nitrogen from the soil sample ?

   (*e*) Describe the method of analyzing total ash of the food sample.

2. Solve any *three* out of five : 15

   (*a*) Enlist various applications of amperometric titrations.

   (*b*) Distinguish between static and quasistatic, thermogravimetry.

   (*c*) Classify different types of drugs with example of each.

   (*d*) How is hardness of water determined ?

   (*e*) Discuss the features of enzyme catalyzed reaction.

P.T.O.

3. Answer the following :

(*a*) Discuss the composition of blood and give their normal limit. 8

Or

Describe the proximate analysis of coal.

(*b*) Explain the term and cyclic sweep voltammetry. 7

Or

Write experimental detail for the fluoride determination from water sample.

4. Answer the following :

(*a*) Define the term BOD_5 and discussed its importance. 8

Or

Write salient features of food safety rules.

(*b*) Draw and explain different types of DTA curve. 7

Or

Discuss the chemistry of pesticides as a water pollutant.

5. (A) Choose the *correct* option from the given alternatives : 5

(1) ..... is used in Fischer-Tropsch process.

(*a*) Producer gas

(*b*) Coal gas

(*c*) Natural gas

(*d*) Water gas

(2) The ..... gives an approximation for the content of aromatic compounds in the soil.

(*a*) Aniline value

(*b*) Peroxide value

(*c*) Index value

(*d*) Aromaticity

(3) ..... is used to investigate the thermal stability of polymers.

(*a*) DTA

(*b*) DMS

(*c*) TGA

(*d*) DSC

(4) ..... analysis is sensitive and reproducible (RSD < 5%) method for trace metal ion analysis in aqueous media.

(*a*) Proximate

(*b*) Stripping

(*c*) Ultimate

(*d*) Elemental

P.T.O.

(5) ..... is the main protein in plasma, which regulate the colloidal osmotic pressure of blood.

(*a*) Albumin

(*b*) Valine

(*c*) Cysteine

(*d*) Alanine

(B) Write brief notes on (any *two*) : 10

(*a*) Radioactive waste

(*b*) Chromopotentiometry

(*c*) Microscopic examinations of foods.