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BR—368—2016

FACULTY OF SCIENCE

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

OCTOBER/NOVEMBER, 2016

(CBCS Pattern)

INORGANIC CHEMISTRY

Paper XVI (CH 534/1)

(Analytical Chemistry)

(Wednesday, 23-11-2016) **Time : 2.00 p.m. to 5.00 p.m.**

Time—Three Hours *Maximum Marks*—75

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

(*ii*) Figures to the right indicate full marks.

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

(*a*) State and explain the principle of cyclic sweepvoltametry.

(*b*) Discuss salient features of dynamic thermogravimetry.

(*c*) Discuss the significance of octane number and carbon residue.

(*d*) Explain the role of clinical analysis in diagnosis of health disorder.

(*e*) What are the water pollution standards for drinking water ?

2. Attempt any *three* : 15

(*a*) Explain the importance of microscopic examinations of foods.

(*b*) Discuss salient features of DTA curves.

(*c*) Draw an experimental setup of voltametry instruments.

P.T.O.

(*d*) Discuss the importance of moisture determination from food sample.

(*e*) Enlist various applications of TGA.

3. Attempt the following : 8

(*a*) Define the term BOD and describe experimental method for its determination.

Or

Describe method to determine albumin from urine sample.

(*b*) Describe ultimate analysis of solid fossil fuel. 7

Or

How will you determine total nitrogen from soil sample.

4. Answer the following : 8

(*a*) What are the factors affecting TGA curve ?

Or

What are the applications of chronopotentiometry ?

(*b*) Define the term calorific value of food and give details of its determination. 7

Or

Describe experiment to determine fluoride from water sample.

5. (A) Select the *correct* alternatives from the following : 5

(*i*) TGA is used to investigate the ..... of polymers.

(A) Thermal stability

(B) Molecular weight

(C) Oxidation

(D) Decomposition

(*ii*) Common working electrode is made up of ..... metal.

(A) Copper (B) Zinc

(C) Platinum (D) Silver

(*iii*) Dissolved oxygen concentration in water ..... .

(A) Increases with rise in temperature

(B) Decreases with rise in temperature

(C) Decreases with lowering in temperature

(D) Remains constant

(*iv*) Aeration of soil at contaminated site with attendant risk of creating ..... .

(A) Particulate

(B) Air pollution

(C) Smog

(D) Roadway air dispersion

P.T.O.

(*v*) Sugar containing aldehyde group that are oxidised to carboxylic acid are classified as .....

(A) Reducing sugar

(B) Invert sugar

(C) Total sugar

(D) Oxidizing sugar

(B) Write short notes on : 10

(*i*) Narcotic drugs

(*ii*) Serum electrolytes

(*iii*) Thermal balance