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**AI—117—2017**

**FACULTY OF SCIENCE**

**M.Sc. (Second Year) (Fourth Semester) EXAMINATION**

**OCTOBER/NOVEMBER, 2017**

**(CBCS Pattern)**

**ANALYTICAL CHEMISTRY**

**Paper (CH-542/4)**

**(Analytical Methods)**

**(Tuesday, 14-11-2017)**

**Time : 2.00 p.m. to 5.00 p.m.**

*Time—3 Hours*

*Maximum Marks—75*

*N.B. :— (i) Attempt All questions.*

*(ii) Use of logarithmic table/calculator is allowed.*

*(iii) All questions carry equal marks.*

1. Answer any *three* : 15

(a) Explain the term primary standards used in different titrimetric analyses.

(b) How will you determine alkalinity of given water sample ?

(c) Write composition of normal human blood.

(d) How will you determine potassium in a given food sample ?

(e) Calculate titer value for estimation of chloride ion in a precipitation titration of the anion with standard 0.1 N  $\text{AgNO}_3$  solution. (AW Cl = 35.453.305 g/eq).

2. Answer any *three* : 15

(a) Explain in brief usage of internal indicator in redox titration with suitable example.

(b) How will you determine sulfate in a given water sample ?

P.T.O.

- (c) Explain in brief chromatographic analyses of drugs.
- (d) How will you determine fat in a given food sample ?
- (e) Calculate conversion factor for estimation of chloride as silver chloride.  
(AW Cl = 35.453 amu; AW Ag = 107.868 amu)
3. (a) Calculate pCl values in a titration of 10 mL 0.1 M NaCl<sub>(aq)</sub> with 20 mL 0.1 M AgNO<sub>3(aq)</sub> at :
- half equivalence point
  - equivalence point and
  - one and half equivalence point of the titration.

8

*Or*

Discuss in detail analysis of soil for phosphorous content in it.

- (b) Discuss in detail classification of drugs. Write *two* names of antipyretic drugs known to you.

7

*Or*

Discuss in brief analysis of pesticide residues on food grains and vegetables.

4. (a) Explain theory of neutralization titration involving perchloric acid and potassium hydrogen phthalate in non -aqueous medium like glacial acetic acid.

8

*Or*

How will you determine arsenic content in a given polluted water sample ?

- (b) What is clinical analysis ? Describe in detail clinical analysis of globulin.

7

*Or*

Discuss in brief contamination and contaminants of food stuff in present scenario.

5. (a) Select the *correct* alternative :

5

- (i) Which acid is present in non-alcoholic beverages ?
- (a) HCl (b)  $\text{HNO}_3$   
(c)  $\text{H}_3\text{PO}_4$  (d) HF
- (ii) NaCl is used as a primary standard in .....titrations.
- (a) neutralization (b) redox  
(c) complexometric (d) none of these
- (iii) Which is a very valuable resource for enrichment of soil with potassium ?
- (a) bone meal (b) cow dung  
(c) ash (d) all of these
- (iv) Aspirin is a.....drug.
- (a) analgesic (b) antipyretic  
(c) anti-inflammatory (d) all of these
- (v) Which of the following acid is present in butter milk ?
- (a) uric acid (b) lactic acid  
(c) citric acid (d) all of these

(b) Write short notes on any *two* :

10

- (i) Filtration of precipitate  
(ii) Analysis of soil for silica content  
(iii) Choice of indicator.