11623

B.Sc. VI Semester Degree Examination, May/June 2016
6.1 : CHEMISTRY

Time : 3 Hours Max. Marks : 80

Instructions : *1) Question paper has **four** Sections. **All** Sections are **compulsory**.*
*2) Answer for **all** Sections should be written in the **same** answer book.*

SECTION – A
(Inorganic, Organic and Physical)

1. Answer **any ten** of the following : **(10×2=20)**
   a) Define a cullet. What is its function in the glass industry ?
   b) What is electroplating ?
   c) Explain the role of Gypsum in cement.
   d) What is post-precipitation ?
   e) Give the chief minerals of Uranium.
   f) What are zwitter ions ? Give example.
   g) How aniline is prepared by nitrites ?
   h) How amino acids are classified ? Give example.
   i) What is the difference between peptides and proteins ?
   j) What is non-competitive inhibition ?
   k) Define osmotic pressure.
   l) State relative lowering of vapour pressure.
   m) Define Vant-Hoff factor.
   n) What is meant by liquid junction potential ?
   o) What kind of electrodes are called as (Redox) reference electrode ?

SECTION – B
(Inorganic)

2. Answer **any two** of the following : **(2×4=8)**
   a) How is gold extracted by hydrometallurgy ?
   b) Write a note on co-precipitation.
   c) Give the manufacture of cement.

3. Answer **any two** of the following : **(2×6=12)**
   a) Describe the extraction of uranium from pitchblende.
   b) Explain affect of temperature pH and complex formation of the solution on the solubility of precipitates.
   c) What is portland cement ? Explain mechanism of setting and hardening of cement.

SECTION – C

(Organic)

4. Answer **any two** of the following : **(2×4=8)**
   a) Explain the separation of amines by Heisenberg method.
   b) Give the synthesis of amino acids by phthalimide or melanic ester method.
   c) What are active sites ? Explain the mechanism of enzyme action.

5. Answer **any two** of the following : **(2×6=12)**
   a) How is benzene diazonium chloride prepared ? Give two synthetic application of it.
   b) What is denaturation ? How are proteins classified according to composition ?
   c) Write a note on :
      i) Turnover number
      ii) Non-competitive inhibition or co-factors.

SECTION – D

(Physical)

6. Answer **any two** of the following : **(2×4=8)**
   a) Deduce the relation between molecular weight and elevation in boiling point by using Clausius-Clayperson equation.
   b) Write a note on calomel electrode.
   c) Discuss potentiometric acid-base titrations in detail.

7. Answer **any two** of the following : **(2×6=12)**
   a) What is osmosis ? Describe Berkley and Heartley's method of measuring osmotic pressure.
   b) Deduce the relation between molecular weight and depression in freezing point.
   c) Describe how hydrogen electrode is used for the measurement of pH of aqueous

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*2) Answer for **all** Sections should be written in the **same** answer books.*

SECTION – A

(Inorganic, Industrial Organic and Environmental)

1. Answer **any ten** of the following : **(10×2 = 20)**

a) What is the role of analytical Chemistry ?

b) Explain the techniques of weighing while using the analytical balance.

c) Define the term median with an example.

d) Define ppt and ppm.

e) What is absolute error and relative error ?

f) Define acid value with example.

g) Write the structure of Alizarin.

h) What are antimalarials ? Give example.

i) What is condensation polymerisation ? Give example.

j) What are enolates ? Give example.

k) What is pollutant ?

l) What are the parameters used in the analysis of soil pollution ?

m) Define soil pollution.

n) Write a method for the estimation of phosphorous in soil.

o) What is polymer degradation ?

SECTION – B

(Inorganic)

2. Answer **any two** of the following : **(2×4 = 8)**

a) Discuss the role of analytical Chemistry.

b) Give the classification of quantitative chemical analytical methods.

c) Explain the caliberation operation of pipette.

3. Answer **any two** of the following : **(2×6 = 12)**

a) Explain the cleanliness and neatness in analytical laboratory.

b) Give an account of 'Gravimetric techniques'.

c) Explain the different types of determinate errors.

SECTION – C

(Industrial Organic)

4. Answer **any two** of the following : **(2×4 = 8)**

a) Write a note on saponification value.

b) How malachite green is prepared ?

c) Explain the synthesis of polyurathane with example and give its uses.

5. Answer **any two** of the following : **(2×6 = 12)**

a) What is soap ? How it is manufactured by modern continuous process ?

b) Give the synthesis of phenol-formaldehyde resins and its uses.

c) How ethyl acetoacetate is synthesised ? Explain keto-enol tautomerism of ethyl acetoacetate.

SECTION – D

(Environmental)

6. Answer **any two** of the following : **(2×4 = 8)**

   a) Explain the impact of water pollutants on environment.

   b) Explain the analysis of alkali metals in soil.

   c) Discuss the different ways to carry out recycling of plastics.

7. Answer **any two** of the following : **(2×6 = 12)**

   a) Write a note on industrial effluents and their treatment methods.

   b) Describe the method for the estimation of

      i) fluoride and

      ii) phosphate is water analysis.

   c) Explain the measurement of DO, BOD and COD in water.
