



11623

B.Sc. VI Semester Degree Examination, May/June 2017
Paper – 6.1 : CHEMISTRY

Time : 3 Hours

Max. Marks : 80

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

SECTION – A
(Inorganic, Organic, Physical)

1. Answer **any ten** of the following : (10×2=20)
- a) What are the raw materials required for the manufacture of cement ?
 - b) Name the important minerals of thorium with its composition.
 - c) What are the objectives of electroplating ?
 - d) Mention various types of glass.
 - e) What is co-precipitation ?
 - f) How aryl amines are reacting with aldehydes ?
 - g) Define denaturation of proteins.
 - h) What is diazocoupling reaction ?
 - i) What are cofactors ?
 - j) Define isoelectric point.
 - k) Define turnover number.
 - l) What are colligative properties ?
 - m) What are isotonic solutions ?
 - n) Define ebullioscopic constant.
 - o) Define EMF.

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SECTION – B
(Inorganic)

2. Answer **any two** of the following : (2×4=8)
- a) Explain the electroplating of nickel.
 - b) Discuss the raw materials required for the manufacture of glass.
 - c) Discuss the conditions of precipitation.
3. Answer **any two** of the following : (2×6=12)
- a) Explain the manufacture of cement by dry process.
 - b) Explain the extraction of thorium from its ore.
 - c) Write a note on :
 - i) Filtration
 - ii) Washing
 - iii) Drying of precipitate.

SECTION – C
(Organic)

4. Answer **any two** of the following : (2×4=8)
- a) Explain the preparation of amines from Gabriel Phthalimide and Hofmann's degradation method.
 - b) Give the synthesis of peptide from carbobenzoxy method.
 - c) Explain the factors affecting the rate of enzymatic reaction.
5. Answer **any two** of the following : (2×6=12)
- a) Explain the classification of amines with examples and explain the stereochemistry of amino nitrogen.
 - b) How is peptide structure determined ?
 - c) Explain the primary and secondary structure of protein.



SECTION – D
(Physical)

6. Answer **any two** of the following :

(2×4=8)

a) What is osmosis ? Calculate the osmotic pressure of a 5% solution of cane sugar at 288 K.

$$R = 0.082 \text{ lit atm K}^{-1} \text{ mol}^{-1} \text{ (Mol. wt. = 342)}$$

b) Derive Nernst equation.

c) Write a note on standard hydrogen electrode.

7. Answer **any two** of the following :

(2×6=12)

a) Describe the determination of molecular mass of solute by Ostwald-Walker's method.

b) i) What is Van't-Hoff factor ?

ii) Discuss the cause for abnormal behaviour of solute in solution.

c) Deduce an expression for EMF of electrolyte concentration cells with transference.



11624

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Paper – 6.2 : 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

(Analytical, Industrial Organic and Environmental)

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

- a) Write any four important safety measures to be taken in the Chemistry laboratory.
- b) Mention any two difference between the classical and instrumental methods.
- c) Name the chemical substance used in desiccator.
- d) Define the term mean with example.
- e) Define co-efficient of variation with example.
- f) Define iodine value with example.
- g) Write the structure of Indigo.
- h) What are antibiotics ? Give one example.
- i) Define ionic Vinyl polymerisation.
- j) What are acidic α - hydrogen ? Give example.
- k) What is sampling ?

P.T.O.



- l) What is water pollution ?
- m) Define alkalinity of water sample.
- n) Write the analysis of sulphur present in soil.
- o) How would you classify wastes ? Mention a list of typical toxic wastes.

SECTION – B
(Analytical)

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

- a) Explain the cleaning of glasswares.
- b) Write a note on :
 - i) Filtration
 - ii) Drying.
- c) What is precision ? Explain the different terms used to describe the precision of a set of data.

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

- a) Describe the principle and technology of the electronic balance.
- b) What is an error ? Give their different types of errors.
- c) Explain the methods of reporting analytical data.

SECTION – C
(Industrial Organic)

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

- a) Write a note on acid value.
- b) Give the synthesis of methyl orange.
- c) Explain Ziegler-Natta-polymerisation.



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

- a) Give the synthesis of sodium P-didecylbenzene sulphonate.
- b) Write a note on natural and synthetic rubbers.
- c) What are enamines ? Explain the acylation of enamines.

SECTION – D
(Environmental)

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

- a) Discuss about reuse and degradation of plastics.
- b) Describe the method for the estimation of the following parameters in water sample.
 - i) Mercury
 - ii) Arsenic
- c) Write a note on water pollution in radioactive wastes.

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

- a) Write the significance of zinc, copper and manganese in water.
 - b) Explain the water pollution and standards.
 - c) Explain the analysis of phosphorus, silica and total nitrogen of soil.
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