VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST

(Autonomous & Residential)

[Affiliated to Madurai Kamaraj University]

B.Sc. (Bot. / Zoo.) Degree (Semester) Examinations, November 2016

Part – III : Allied Subject : First Semester : Paper – I

INORGANIC, ORGANIC AND PHYSICAL CHEMISTRY

Under CBCS – Credit 4

Time: **3** Hours   Max. Marks: **75**

SECTION – A

Answer ALL Questions :   **(10 × 1 = 10)**

1. Pick out the molecular mass of $NaOH$

   a) 40   b) 80   c) 11   d) 20

2. The structural formula of a compound is a _____ of the molecular structure.

   a) Graphical representation   b) Isomer

   c) empirical   d) none of the above

3. Pick out the electrophile from the following :

   a) H^+ b) NO_2^+ c) CH_3^+ d) All the above

4. The stability order of the carbocation is _____.

   a) $3^0 > 2^0 > 1^0 >$ b) $1^0 > 2^0 > 3^0 >$

   c) $2^0 > 3^0 > 1^0 >$ d) none of the above

5. The rate of decomposition of $SO_2\ and\ O_2$ is slow down by the presence of _____.

   a) Arsenic   b) Antimony   c) Lead   d) Sulphur

6. What is the principle of volumetric analysis?

7. Define optical isomers.

8. Give any two points of difference between resonance and tautomers.

9. What is catenation?

10. Give an example of autocatalyst.

SECTION – B

Answer ALL Questions :   **(5 × 7 = 35)**

11. a) What are primary and secondary standards? Give two examples each?

   (OR)

   b) Explain the terms :

   i) End point   ii) Indicator   iii) Titrant   iv) Analyte

12. a) Find the molecular formula for a compound with a mass of 78 amu, and the empirical formula is CH.

   (OR)

   b) An organic substance on analysis was found to contain 18.6% C, 1.55% H and 55.04% Cl and 24.81% oxygen. Calculate empirical formula.

13. a) Explain substitution and addition reactions with examples.

   (OR)

   b) What is polymerization? How will you prepare polyethylene and polyvinyl chloride.

14. a) Discuss homolytic and heterolytic fission.

   (OR)

   b) Explain the hybridization involved in CH_4.

15. a) Differentiate thermal and photochemical reactions.

   (OR)

   b) What is catalysis? Draw the energy level diagram of catalyst.

SECTION – C

Answer any THREE Questions :   **(3 × 10 = 30)**

16. How will you prepare normal, formal and molar solutions?

17. Define the term isomer. Explain the following isomers :

   i) Structural isomerism   ii) Stereo isomerism

18. Discuss the following reactions   i) Elimination   ii) rearrangement

19. Write notes on reactive intermediates.

20. Give detailed classification of catalyst.

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VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST
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B.Sc. Physics Degree (Semester) Examinations, November 2016
Part – III : Allied Subject : First Semester : Paper – I

INORGANIC, ORGANIC AND PHYSICAL CHEMISTRY – I
Under CBCS – Credit 4

Time: **3** Hours   Max. Marks: **75**

SECTION – A

Answer ALL Questions : $(10 \times 1 = 10)$

1. What is the normality of 40 g sodium hydroxide dissolved in 1 litre of water?

  a) 40 N   b) 20 N   c) 0.1 N   d) 1 N

2. What is the weight of oxalic acid present in 100 ml of 1 N solution.

  a) 63   b) 6.3   c) 36.5   d) 40

3. Give the bond order of oxygen molecule.

4. What is the shape of the 's' orbital?

5. What is the structure of water molecule based on VSEPR theory?

6. What is the bond order of helium molecule?

7. What are the main components of nucleus?

8. Define nuclear fission.

9. Phenolphthalein is an _____.

  a) Explosive   b) insecticide   c) pesticide   d) Indicator

10. Lithium aluminium hydride is an _____.

  a) Reducing agent   b) insecticide   c) pesticide   d) Indicator

SECTION – B

Answer ALL Questions : $(5 \times 7 = 35)$

11. a) How will you prepare the standard solution of 0.1 N sodium carbonate in 100 ml SMF?

  (OR)

  b) Give examples for the primary standard and how will you prepare 0.2 M sodium hydroxide in 1000 ml?

12. a) Draw the structure of s – s, s – p and p – p over lapping.

  (OR)

  b) Write the application of VB theory on O_2 molecules.

13. a) Apply VSEPR theory on the structure of ammonia.

  (OR)

  b) Explain the formation of helium molecule by molecular orbital theory.

14. a) Define group displacement law with example for alpha and beta emission.

  (OR)

  b) Describe the principle and applications of nuclear fission.

15. a) Write the preparation and properties of TNT.

  (OR)

  b) Write the preparation and uses of malachite green.

SECTION – C

Answer any THREE Questions : $(3 \times 10 = 30)$

16. Explain in detail the estimation of Na_2CO_3 using Na_2CO_3 as standard solution and HCl as link.

17. Elaborate the sp, sp^2 and sp^3 hybridizations with an example for each.

18. Give the molecular orbital diagram for O_2 molecule.

19. Discuss carbon dating and hydrogen bomb.

20. Write short notes on aspirin and crown ethers.

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VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST

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[Affiliated to Madurai Kamaraj University]

B.Sc. Chemistry Degree (Semester) Examinations, November -2016
Part – III : Core Subject : First Semester : Paper - I

INORGANIC AND PHYSICAL CHEMISTRY

Under CBCS – Credit 4

Time: **3** Hours   Max. Marks: **75**

SECTION – A

Answer ALL Questions :   (10 × 1 = 10)

1. As per the uncertainty principle, the product of Δx. Δp is equal to.
   a) h/4π   b) h/2π   c) h/3π   d) 0

2. To whom was awarded Nobel prize in the field of quantum mechanics ?
   a) Einstein   b) Planck   c) Heisenberg d) Schrodinger

3. Which of the following is the weakest?
   a) Ionic bond   b) Covalent bond
   c) Coordinate bond   d) Vander Waals force

4. Gold number is minimum in case of ?
   a) Gelatin   b) Egg albumin   c) Gum arabic   d) Starch

5. Catalytic poisons _____ the activity of a catalyst ?
   a) Promote   b) Destroy
   c) has no action on   d) both (a) and (b)

6. State the photoelectric effect.

7. What is Hund's rule?

8. Write any one properties of ionic bond.

9. Give the definition of the sols.

10. Define adsorption.

SECTION – B

Answer ALL Questions :   (5 × 7 = 35)

11.a) Derive the De-Broglie's wave equation.

(OR)

   b) Write short note Heisenberg uncertainty principle.

12.a) Write note on the quantum numbers.

(OR)

   b) Explain the Pauli's exclusion principle.

13.a) Discuss the Born-Haber cycle.

(OR)

   b) State and explain the Fajan,s rule.

14.a) Define emulsions. Explain its types with examples.

(OR)

   b) How is molecular weight determined by osmotic pressure method.

15.a) What are factors influencing adsorption.

(OR)

   b) Discuss the applications of adsorption.

SECTION – C

Answer any THREE Questions :   (3 × 10 = 30)

16. Explain:
    i) Hydrogen spectrum
    ii) Bohr's energy for hydrogen.

17. Derive the Schrodinger wave equation for three dimensional box.

18. Discuss the determination of electronegavity by Pauling and Mulliken's methods.

19. Describe the applications of colloids.

20. Write note on
    a) enzyme catalysis
    b) acid-base catalysis.

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VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST
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[Affiliated to Madurai Kamaraj University]
B.Sc. Chemistry Degree (Semester) Examinations, November 2016
Part – III : Core Subject : First Semester : Paper – II

ORGANIC CHEMISTRY – I
Under CBCS – Credit 3

Time: **3** Hours   Max. Marks: **75**

SECTION – A

Answer ALL Questions :   **(10 × 1 = 10)**

1. The IUPAC name of the following compound Cl-CH$_2$-Br is _____.

2. Identify the type of isomerism between the following compounds:

   CH$_3$OCH$_3$ and C$_2$H$_5$OH

   a) Chain isomerism   b) Position isomerism

   c) Functional isomerism   d) metamerism

3. The inductive effect may be due to _____.

4. The order of stability of carbocations is

   a) $1^o > 2^o > 3^o$ b) $2^o > 3^o > 1^o$ c) $3^o > 2^o > 1^o$ d) none of these

5. The reactions of >C=C< are mainly

   a) addition   b) substitution   c) elimination d) rearrangement

6. Predict the product in the following reaction. $CO + 3H_2 \rightarrow$?

7. Benzene obeys

   a) $4n + 1$ b) $4n + 2$ c) $4n – 2$ d) $4n – 1$ rule

8. Write the Kekule structure of benzene.

9. Halogens in aromatic electrophilic substitution is

   a) ortho, para directing   b) meta directing

   c) non directing   d) none of these

10. Which electrophile is involved in sulphonation of benzene?

SECTION – B

Answer ALL Questions :   **(5 × 7 = 35)**

11. a) Give the nomenclature of aliphatic compounds with examples.

    (OR)

    b) Write notes on   i) metamerism   ii) functional isomerism

12. a) Explain hyperconjucation with examples.

    (OR)

    b) Write notes on electromeric effect with its applications.

13. a) Discuss the relative acidity of alkenes and alkynes.

    (OR)

    b) Explain the geometrical isomerism in alkene.

14. a) How will you prepare benzene?

    (OR)

    b) Explain resonance and resonance energy in benzene.

15. a) Discuss the effect of substitution of benzene nucleus.

    (OR)

    b) How nitration takes place by aromatic electrophilic substitution?

SECTION – C

Answer any THREE Questions :   **(3 × 10 = 30)**

16. Discuss the rules in naming organic compounds.

17. Discuss the mechanism of homolytic and heterolytic fission with examples.

18. Discuss Markownikoff's rule and peroxide effect.

19. Discuss the various theory of aromaticity.

20. What do you mean by *meta* – directors in aromatic substitution reactions? Illustrate.

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B.Sc. Chemistry Degree (Semester) Examinations, November 2016
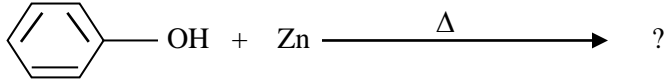
Part – III : Core Subject : Third Semester : Paper – I

ORGANIC AND INORGANIC CHEMISTRY

Under CBCS – Credit 4

Time: **3** Hours   Max. Marks: **75**

SECTION – A

Answer ALL Questions :   (10 × 1 = 10)

1. Which of the following is an oxidizing agent?

     a) NaOH   b) HCl   c) $KMnO_4$ d) None of these

2. What is the indicator used for the titration of $KMnO_4$ Vs oxalic acid?

3. What is a mineral?

4. What is roasting?

5. Give the structure of naphthalene.

6.

7. Write the structural formula for phenetole.

8. Give the uses of diethyl ether.

9. Draw the structure of varetraldehyde.

10. What is the structure of butanone?

SECTION – B

Answer ALL Questions :   (5 × 7 = 35)

11. a) Write short notes on choice of indicators in acid base titrations.

(OR)

    b) How will you prepare a standard solution?

12. a) Explain the electromagnetic technique.

(OR)

    b) Write short notes on smelting.

13. a) How will you prepare picric acid from chloro benzene and give the reaction of catechol with silver oxide.

(OR)

    b) Write the preparation of naphthalene from 4–phenyl –1–butene and 4–phenyl–3–butenoic acid.

14. a) Explain the reaction of mustard gas with water, oxygen and chlorine.

(OR)

    b) Compare ethyl alcohol with diethyl ether.

15. a) Give two methods of preparation and two reaction of Cinnamaldehyde.

(OR)

    b) Discuss the chemistry of salicyladehyde.

SECTION – C

Answer any THREE Questions :   (3 × 10 = 30)

16. Discuss elaborately the neutralization, redox and precipitation reactions in the estimation process.

17. Narrate the comparative study of group IV elements Ge, Sn & Pb.

18. Outline the methods of preparation and chemical properties of anthracene.

19. a) Write the structure and preparation of mustard gas.

    b) Give the reactions of Thiothers with

       i) Halogen   ii) Water in the presence of NaOH   iii) Oxygen

20. Explain the Perkins reaction and Knovenagal reaction with mechanism.

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VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST
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B.Sc. Chemistry Degree (Semester) Examinations, November -2016
Part – III : Core Subject : Third Semester : Paper - II

PHYSICAL CHEMISTRY - II
Under CBCS – Credit 3

Time: **3** Hours   Max. Marks: **75**

SECTION – A

Answer ALL Questions :   (10 × 1 = 10)

1. "Equal volume of all gases at the same temperature and pressure contain equal number of molecules" is the statement of
   a) Charle's law   b) Boyle's law
   c) Combined gas law   d) Avogadro's law

2. An intensive property does not depend upon?
   a) Nature of the substance   b) Quantity of matter
   c) Eternal temperature   d) Atmospheric pressure

3. Entropy is measure of _____ of the molecules of the system?
   a) Concentration   b) Velocity
   c) Zig-Zag motion   d) Randomness or disorder

4. The entropy is measured in
   a) KJmol^{-1} b) JK^{-1}mol^{-1} c) cal mol^{-1} d) None of these

5. A dynamic equilibrium.
   a) Is when the rate of the forward reaction is equal to the rate of the reverse reaction
   b) Is a form of static equilibrium
   c) Only occurs in chemical equilibrium
   d) Involves radioactivity

6. What is meant by the mean free path?

7. Define internal energy.

8. State heat engine.

9. What is residual entropy?

10. State the law of mass action.

SECTION – B

<u>**Answer ALL Questions :**</u>   **(5 × 7 = 35)**

11.a) Give the postulates of kinetic theory of gases.

(OR)

  b) Write notes on
   (i) Collision diameter
   (ii) Collision number
   (iii) Collision frequency.

12.a) Derive the relationship between C_P and C_V.

(OR)

  b) State Hess's law of constant heat summation and describe its applications.

13.a) Prove that all spontaneous processes are accompanied by an increase of entropy.

(OR)

  b) Discuss the term Gibb's free energy. What is its physical significance.

14.a) State third law of thermodynamics. Explain its importance.

(OR)

  b) Describe the experimental verification of the Third law of thermodynamics.

15.a) What is equilibrium law? Explain it's in terms of partial pressures.

(OR)

  b) Write detailed note on Le Chaterlier's principle.

SECTION – C

<u>**Answer any THREE Questions :**</u>   **(3 × 10 = 30)**

16. Define average velocity, most probable velocity and root mean square velocity. Derive the mathematical expressions for the three types of molecular velocities.

17. Calculate *w, q, ΔU, ΔH* of isothermal reversible expansion of an ideal gas.

18. Derive an expression for the efficiency of a carnot's engine working between the two temperatures T_1 and T_2.

19. a) How will you determine the absolute entropy of a substance with the help of the third law of thermodynamics

  b) Calculate the entropy change accompanying the conversion of 1 mole of ice at 273.1 K and 1 atm pressure into steam at 373.1 K and 1 atm pressure, given that at 273.1 K, the molar heat of fusion of ice , ΔH_f, is 6.00 KJmol^{-1} and at 373.1 K, the molar heat of vaporization of water, ΔH_v, is 40.60 KJmol^{-1}. Also assume that the molar the molar heat capacity, Cp, in the temperature range 373.1 – 273.1 K remains constant at 75.2 JK^{-1}mol^{-1}.

20. Write notes on:
   (i) Haber's process
   (ii) Contact process

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B.Sc. Chemistry Degree (Semester) Examinations, November 2016
Part – III : Core Subject : Fifth Semester : Paper – I

ORGANIC CHEMISTRY – II
Under CBCS – Credit 4

Time: **3** Hours   Max. Marks: **75**

SECTION – A

Answer ALL Questions :   **(10 × 1 = 10)**

1. Phthalic acid reacts with resorcinol in presence of $conc\ H_2SO_4$ to give _____.

   a) Coumarin   b) Alizarin   c) Fluorescein   d) Phenolphthalein

2. Which one of the following is least basic?

   a) Cyclohexylamine   b) Triethylamine

   c) Dimethylamine   d) Ethylamine

3. Which one of the following is a poisonous yellow gas?

   a) Diazomethane   b) Diazoacetic ester

   c) p-Aminoazobenzene   d) Diazoamino benzene

4. Each carbon in the chair conformation of cyclohexane has _____ equatorical and _____ axial bond.

   a) 3, 3   b) 2, 2   c) 1, 1   d) 6, 6

5. Compounds having same sequence of covalent bonds but differ in relative position of the atoms or groups in space are called _____.

   a) Metamers   b) Functional isomers

   c) Stereoisomers   d) Structural isomers

6. Give a simple chemical test to distinguish between maleic and fumaric acid.

7. Why does aqueous methylamine turn red litmus blue?

8. Write the structure of diazoacetic ester.

9. Which is the preferential conformation of ethane molecules at room temperature?

10. Assign R or S configuration to the following compound.

$$HO-CH_2-\overset{\overset{\displaystyle OH}{|}}{\underset{\underset{\displaystyle CHO}{|}}{C}}-H$$
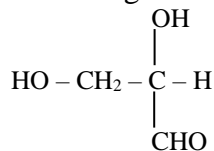
SECTION – B

Answer ALL Questions :   **(5 × 7 = 35)**

11. a) Discuss the geometrical isomerism exhibited by maleic and fumaric acids.

(OR)

b) How is adipic acid prepared? Describe its properties.

12. a) Suggest any four tests to distinguish primary secondary and tertiary amines.

(OR)

b) How are the following prepared?   i) Methyl cyanide
      ii) Diethylamine   iii) Urea   **(2½ + 2½ + 2)**

13. a) Explain any four synthetic uses of diazoacetic ester.

(OR)

b) How is diazomethane prepared? How does it react with the following compounds?   i) Acetic acid   ii) Acetylene

14. .a) Discuss the influence of dipolemoment on conformation with a suitable example.

(OR)

b) What is Baeyer's strain theory? What are its limitations?

15. a) Write a brief account on the following
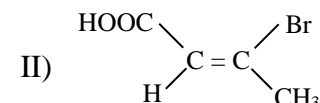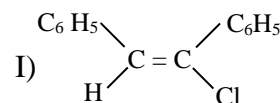
   i) Symmetry elements   ii) Chirality

(OR)

b) i) Give any two methods for resolving a racemic mixture into its d and l components.   **(5 + 2)**

   ii) Assign 'E', 'Z' configuration for the following geometrical isomers.

I) C_6H_5, H $C=C$ C_6H_5, Cl II) $HOOC$, H $C=C$ Br, CH_3

SECTION – C

Answer any THREE Questions :   **(3 × 10 = 30)**

16. a) Explain the phenomenon of optical isomerism in tartaric acid.

b) How is phthalimide obtained?   **(8 + 2)**

17. a) Distinguish between ethylcyanide and ethyl isocyanide.

b) Write notes on structure of urea.   **(4 + 6)**

18. a) What are the various reduction products of nitrobenzene? Indicate the reaction conditions to obtain them.

b) Nitrobenzene on further nitration gives m–dinitrobenzene. Explain.

c) How will you prepare o – toluidine?   **(4 + 3 + 3)**

19. Discuss the conformational analysis of n – butane.

20. Write shorte notes on :   a) Walden inversion

   b) Asymmetric synthesis   c) Polarized light   **(4 + 4 + 2)**

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B.Sc. Chemistry Degree (Semester) Examinations, November 2016
Part – III : Core Subject : Fifth Semester : Paper – II
INORGANIC CHEMISTRY – II
Under CBCS – Credit 4

Time: **3** Hours   Max. Marks: **75**

SECTION – A

Answer ALL Questions :   **(10 × 1 = 10)**

1. Which one is an example for positive ligand?

    a) Cyano   b) Aquo   c) Bromo   d) Hydrazinium

2. Colour of a complex is satisfactorily explained by

    a) Werner's theory   b) Valence bond theory

    c) Molecular orbital theory   d) Crystal field theory

3. The correct order of trans effect is

    a) $H_2O > NH_3 > NO_2^- > CO$ b) $NH_3 >) H_2O > NO_2^- > CO$

    c) $CO > NO_2^- > NH_3 > H_2O$ d) $CO > NH_3 > NO_2^- > H_2O$

4. The difference between the measured value and true value is known as

    a) relative error   b) instrumental error

    c) absolute error   d) personal error

5. The metal present in haemoglobin is

    a) K   b) Fe   c) Cu   d) Mo

6. Define ionization isomerism.

7. What do you know about chelates?

8. Define associative mechanism.

9. What is meant by standard deviation?

10. What are trace elements in biological systems?

SECTION – B

Answer ALL Questions :   **(5 × 7 = 35)**

11. a) Discuss the optical isomerism in 4 and 6 co- ordinate complexes with two examples.

(OR)

b) i) What is EAN rule for the co – ordination compounds?   **(4)**

ii) Explain valence bond theory with suitable examples.   **(3)**

12. a) Write a short note on   i) Spectrochemical series and   **(4)**

ii) John –Teller distortion   **(3)**

(OR)

b) Give an account of molecular orbital theory.

13. a) i) What are labile and inert complexes. Give examples.   **(5)**

ii) Define trans effect.   **(2)**

(OR)

b) Explain inner sphere and outer sphere electron transfer reactions.

14. a) Distinguish between   i) precision and accuracy

ii) co- precipitation and post precipitation

(OR)

b) Write a short note on

i) precipitation from homogeneous solutions

ii) Graphical method

iii) Curve fitting.

iv) Method of least squares

15. a) What are essential elements? Give examples.

Explain the biological importance of Na ,K,Mg and Ca.

(OR)

b) Write a brief note on metals in medicine.

SECTION – C

Answer any THREE Questions :   **(3 × 10 = 30)**

16. a) Explain the Werner's theory of co- ordination compound with a suitable example.   **(5)**

b) What are ligands? How are they classified?

Give an example for each type.   **(5)**

17. a) Write the salient features of crystal field theory.   **(5)**

b) Indicate the d- orbital splitting in an octahedral complexes.   **(5)**

18. a) Explain the substitution reaction of cobalt (III) and platinum complexes.   **(5)**

b) Explain dissociative mechanism with a suitable example.   **(5)**

19. What are errors? How are they classified? Explain the sources and minimization of error.

20. a) Give a brief account on haemoglobin and myoglobin as oxygen carriers.   **(5)**

b) Discuss about biochemistry of iron.   **(5)**

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B.Sc. Chemistry Degree (Semester) Examinations, November -2016
Part – III : Core Subject : Fifth Semester : Paper - III

PHYSICAL CHEMISTRY - III
Under CBCS – Credit 3

Time: **3** Hours   Max. Marks: **75**

SECTION – A

Answer ALL Questions :   (10 × 1 = 10)

1. If the transport number of K^+ is 0.492 in KCl solution. The transport number of Cl^- ion will be
   a) 0.984   b) 0.492   c) 0.600   d) 0.508

2. The salt bridge in the electrochemical cell serves to
   a) Maintain electrical neutrality
   b) Increase the oxidation rate
   c) Increase the voltage of the cell
   d) Increase the rate at which equilibrium is attained

3. Which one of the following is an example for primary cell?
   a) Dry cell   b) Lead storage cell
   c) Ni-Cd cell   d) None of these

4. Sulphates of calcium , barium and strontium exhibit.
   a) chemiluminescences   b) Phosphorescence
   c) Fluorescence   d) None of these

5. When a single phase is present in a two component system, the degree of freedom is.
   a) Zero   b) One   c) Three   d) Two

6. Define specific conductance?

7. What do you meant by single electrode potentials.

8. Define the term corrosion.

9. What is photolysis?

10. Define component.

SECTION – B

<u>Answer ALL Questions :</u>   (5 × 7 = 35)

11.a) Describe merits and defects of Arrhenius theory.

(OR)

b) How will you determine the solubility of a sparingly soluble salt by conductance measurement?

12.a) i) Define electrolytic cell.
ii) Give the relationship between electrical energy and chemical energy.

(OR)

b) Derive Nernst equation for measuring EMF of a cell.

13.a) Explain the experimental determination of transport number.

(OR)

b) Write the applications of EMF measurement in potentiometric titrations.

14.a) Discuss the photosynthesis of HCl form hydrogen and chlorine.

(OR)

b) Describe the biological applications of photochemistry.

15.a) Draw a well labelled phase diagram for KI-H_2O system and discuss its salient features.

(OR)

b) Deduce the phase rule equation on the basis of thermodynamics.

SECTION – C

<u>Answer any THREE Questions :</u>   (3 × 10 = 30)

16. Discuss the curve obtained by conductometric titration of
(i) a strong acid with a strong base
(ii) a weak acid with a weak base.

17. Describe the following
(i) metal-metal ion electrode
(ii) metal-insoluble salt electrode and
(iii) glass electrode.

18. Describe how quinhydrone electrode and hydrogen electrode are used for the measurement of pH of aqueous solutions.

19. Explain the mechanism of fluorescence and phosphorescence showing various ground and excited states of a molecule, using Jablonski diagram.

20. Draw a graph of Lead-Silver system and explain it in detail

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B.Sc. Chemistry Degree (Semester) Examinations, November -2016
Part – III : Elective Subject : Fifth Semester : Paper - I

COMPUTER APPLICATION IN CHEMISTRY AND GREEN CHEMISTRY
Under CBCS – Credit 4

Time: **3** Hours   Max. Marks: **75**

SECTION – A

Answer ALL Questions :   **(10 × 1 = 10)**

1. In how many generations a computer can be classified?
   a) 3   b) 4   c) 5   d) 6

2. Which of the following circuit is used as a memory device in computers?
   a) Rectifier   b) Flip Flop
   c) Comparator   d) Attenuator

3. Ms Word is an example of ?
   a) an operating system   b) Processing device
   c) Application software   d) None of these

4. An example of green chemistry is ?
   a) Recycled carbet   b) a product on earth day
   c) a sublimation reaction   d) Bio plastics

5. The first listed of the 12 principles of green chemistry is ?
   a) Prevent wastage   b) Catalysis
   c) Atom economy   d) Benign solvents

6. What is input ?

7. What is operating system?

8. What is mail merge ?

9. Write the aim of green chemistry.

10. Mention the definition of green chemistry.

SECTION – B

Answer ALL Questions :   **(5 × 7 = 35)**

11.a) Write about the parts of computer.
                  (OR)
   b) Explain the input and output devices of computer.

12.a) Discuss the types of memory.
                  (OR)
   b) Explain in briefly the number system.

13.a) Give the salient features of windows.
                  (OR)
   b) Explain the Ms Word for typing texts and equation in chemistry.

14.a) Why do need green chemistry ?
                  (OR)
   b) Write note on the green chemistry and eco-efficiency.

15.a) Explain the inception and evolution of green chemistry.
                  (OR)
   b) Give a brief account of atom economy scope of green chemistry.

SECTION – C

Answer any THREE Questions :   **(3 × 10 = 30)**

16. Describe the characteristic and types of computer.

17. Explain the flowchart and programming languages.

18. Discuss the drawing chemical structure and pasting them in the text by using chemdraw.

19. Discuss in detail the green chemistry education.

20. Discuss the twelve principles of green chemistry.

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VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST

(Residential & Autonomous – A Gurukula Institute of Life-Training)
Re-accredited with 'A' Grade by NAAC (CGPA 3.59 out of 4.00)
Affiliated to Madurai Kamaraj University

B.A. / B.Sc. Degree (Semester) Examinations, November 2016
Part – IV : Non Major Elective Subject : First Semester : Paper – I

FOOD CHEMISTRY
Under CBCS – Credit 2

Time: **2** Hours   Maximum Marks: **75**

SECTION – A

Answer ALL Questions: (10 × 1 = 10)

1. Which one is the natural antioxidant
   a) Edible oil   b) Ghee   c) Black pepper   d) Turmeric powder
2. The adulterant present in the sugar is
   a) Vanaspathi   b) molasses   c) H_2O d) Chalk powder
3. The boiling point of H_2O in the pressure cooker is
   a) 0^oC b) increases   c) 100^oC d) decreases
4. The adulterant present in the Ghee (or) is Butter is
   a) molasses   b) Rava   c) maida   d) Chalk powder
5. Liver damage disease occur by
   a) bacterial   b) fungal   c) parasitic   d) None of these
6. Give any two symptoms of deficiency of Mercury (H_g).
7. Define: Surfactants.
8. What are the types of food ingredients?
9. Define: Drying.
10. What do you mean by Pasteurization?

SECTION – B

Answer ALL Questions: (4 × 10 = 40)

11. a) Discuss the types of Food ingredients?   **(OR)**
    b) How will you find the adulteration of Honey?

12. a) Write the preparation and uses of DDT and BHC.   **(OR)**
    b) Discuss the ''Malted Beverages''.

13. a) Draw the structure and uses of ''Malathion''.   **(OR)**
    b) Defining: i) Canning process   ii) Fermentation process   iii) Edible coating

14. a) How will you preserve the food material using low and high temperature methods?   **(OR)**
    b) Discuss the toxic effects of some metals and chemicals.

SECTION – C

Answer Any TWO Questions: (2 × 12½ = 25)

15. Discuss the food borne diseases caused by some pathogenic organisms.

16. Differentiate emulsion and emulsifying agents with suitable example and what are the types of emulsion occur.

17. Discuss the international adulteration and methods of detection.

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B.Sc. Chemistry Degree (Semester) Examinations, November 2016
Part – IV : Skill Based Subject : Third Semester : Paper – I

BIOMOLECULES AND PHARMACEUTICAL CHEMISTRY
Under CBCS – Credit 2

Time: **2** Hours   Maximum Marks: **75**

SECTION – A

Answer ALL Questions: **(10 × 1 = 10)**

1. Amino acid contains _____.
   a) acid group   b) basic group   c) both acid and basic group   d) none of these
2. The agent which produce unconsciousness all over the body is called as
   a) antiseptic   b) disinfectant   c) analgesic   d) none of these
3. Which one the following is an analgesic agent?
   a) P-aminophenol   b) naproxen   c) nitrofuran   d) none of these
4. Among the following which one is local anaesthetic agent?
   a) vinyl ether   b) chloroform   c) haloethane   d) none of these
5. Essential amino acid _____.
   a) Synthesized from the body   b) synthesized by sunlight   c) included by diet   d) none of these
6. Define antipyretic agent.
7. Draw the structure of thiopental sodium.
8. Name any two dyes used as antiseptic.
9. Define nucleoside.
10. What do you mean by local anaesthetics?

SECTION – B

Answer ALL Questions: **(4 × 10 = 40)**

11. a) i) Write any two methods to prepare amino acids.
       ii) What do you mean by zwitter ion and isoelectric point of amino acids?   **(OR)**
    b) Differentiate DNA and RNA.
12. a) Discuss the nomenclature and classification of enzyme.   **(OR)**
    b) Differentiate antiseptic from disinfectant.
13. a) Discuss preparation, advantage and disadvantages of the following
         i) Trichloroethylene   ii) Cyclopropane   **(OR)**
    b) What do you mean by anaesthetics? Write the characteristics of ideal anaesthetics.
14. a) Briefly describe how derivatives of salicylic acid used as analgesic agent.   **(OR)**
    b) Write note on following inflammatory agent   i) Paracetamol   ii) Brufen

SECTION – C

Answer Any TWO Questions: **(2 × 12½ = 25)**

15. Discuss   i) Fischer Lock and Key model   ii) Induced fit model
16. Give an account of phenol and its derivatives as antiseptic and disinfectant.
17. Write a note on structure of proteins.

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