SHRIMATI INDIRA GANDHI COLLEGE

(Nationally Accredited at 'A' Grade (3rd Cycle) By NAAC)

Tiruchirappalli – 2.

QUESTION BANK FOR

B.Sc CHEMISTRY

2017-2018

DEPARTMENT OF CHEMISTRY

CONTENT

16SACCH1

(For candidates admitted from 2016-2017 onwards)
B.Sc. DEGREE EXAMINATION, NOVEMBER 2016
Part III-CHEMISTRY-MAJOR
CHEMISTRY – I

Times: Three hours **Maximum: 75 Marks**

SECTION – A (10 x 2 = 20)

Answer ALL questions

1. Define coordinate band
2. What are fuel gases?
3. State inductive effect.
4. What are polar solvents?
5. State Huckel's rule.
6. Name any two analgesics
7. Define unit cell
8. Define Phase
9. What is homogenous equilibria?
10. Define rate of a chemical reaction.

SECTION – B (5 x 5 = 25)

Answer ALL questions

11. a) Mention the Postulates of Werner's Theory

(Or)

b) Differentiate between soaps and detergents

12. a) Account for the acidic nature of phenol.

(Or)

b) Discuss the chemistry of choloroform

13. a) Explain the chemistry of benzene.

(Or)

b) What are anesthetics? Explain its types.

14. a) Mention the various symmetry elements present in crystal system.

(Or)

b) Derive Gibb's phase rule

15. a) Explain the decomposition reaction of HI

(Or)

b) Discuss the effect of temperature on reaction rate.

SECTION – C (3 x 10 = 30)

Answer any THREE questions

16. Elaborate the biological role of hemoglobin and chlorophyll

17. What do you by hyper conjugation? Explain its consequences.

18. Describe the isolation and properties of napthalene

19. Draw and explain the Carnot's cycle

20. How do the order of a reaction is determined? Explain?

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16SACCH2

(For candidates admitted from 2016-2017 onwards)
B.Sc. DEGREE EXAMINATION, APRIL 2017
Part III-CHEMISTRY-MAJOR
CHEMISTRY – II

Times: Three hours **Maximum: 75 Marks**

SECTION – A (10 x 2 = 20)
Answer ALL questions

1. What are isobars? Give two examples.
2. What are semiconductors? Give examples.
3. What happens when glucose reacts with bromine water?
4. What are essential amino acids
5. Pyridine is more basic than pyrrole. Why?
6. What is optical isomerism
7. What is gel? Give one example.
8. What is meant by electrophoresis?
9. Define equivalent conductance.
10. What are buffer solutions?

SECTION – B (5 x 5 = 25)
Answer ALL questions

11. a) What is the difference between isotope and isotone? Explain with examples.

(Or)

b) Write short note on electron gas theory

12. a)Elucidate the structure of glucose.

(Or)

a) Explain the biological functions of proteins

13. a) Give the preparation , properties and uses of epoxy resi.

(Or)

b) Give two Preparation methods of pyridine. Mention it's any two properties.

14. a) What are emulsions? How are they classified? How are they prepared

(Or)

b) State and explain the laws of photochemistry

15. a) State and explain Ostwald's dilution law

(Or)

b) Draw and explain the conductometric titration curve for strong acid vs strong base

SECTION – C (3 x 10 = 30)
Answer any THREE questions

16. Give the preparation, Properties and uses of sodium thiosulphate. Give its structure

17. Describe the various methods of resolution of racemic mixtures

18. What is geometrical isomerism? Explain examples.

19. What is meant by chromatography? explain about column chromatography.

20. Define and explain Kohlrausch law.

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16SCCCH1

(For candidates admitted from 2016-2017 onwards)
B.Sc. DEGREE EXAMINATION, NOVEMBER 2017
Part III-CHEMISTRY-MAJOR
GENERAL CHEMISTRY – I

Times: Three hours **Maximum: 75 Marks**

SECTION – A (10 x 2 = 20)
Answer ALL questions

1. State Pauli's exclusion principle.
2. Define: Electronegativity.
3. How will you estimate the interfering oxalate ions in the qualitative analysis?
4. What is meant by molality?
5. How nitrenes are prepared?
6. State Hammond's postulate
7. State Markovnikov's rule.
8. What is peroxide effect?
9. Define Gold number.
10. What is meant by reverse osmosis?

SECTION – B (5 x 5 = 25)
Answer ALL questions

11. a) Explain the Pauling scale of electronegativity

(Or)

b) What is ionization energy? How do the ionization energies of elements vary as we move?

i) Along a period

ii) Down a group why?

12. a) Discuss the complexation reactions involved in the identification of cations.

(Or)

b) Explain the precipitation reactions involved in qualitative analysis.

13. a) Discuss the free radical halogenations reaction and mechanism of alkanes.

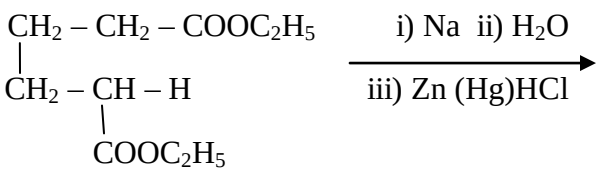
(Or)

b) Explain the conformational analysis of ethane.

14. 14 a) State and explain Bayers strain theory and discuss its limitations

(Or)

b) Complete the following reactions

i) 

ii) $CH_3CH=CHCH_3 + CH_2I_2 \xrightarrow{Zn(Cu)/Ether}$

15. a) Write a note on Tyndall effect and Brownian movement.

(Or)

b) What are emulsions? Discuss their types with examples.

SECTION – C (3 x 10 = 30)
Answer any THREE questions

16. a) Give a brief account on the four quantum numbers.

b) Discuss the classification of elements into s, p, d and f block elements.

17. Elaborate the four types of titrations with examples.

18. Describe the generation and stability of carbanions.

19. Explain about the mechanisms involved in the addition of HBr, H_2O and H_2SO_4 to an unsymmetrical alkene. Give reasons for major product formation.

20. a) Describe condensation methods used for the preparation of colloidal solution.

b) Discuss the electrical properties of colloids.

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GENERAL CHEMISTRY – II

Times: Three hours **Maximum: 75 Marks**

SECTION – A (10 x 2 = 20)
Answer ALL questions

1. Define ionic bond.
2. Why He_2 does not exist?
3. Mention the general characteristics of s-block elements.
4. How will you prepare XeF_4?
5. State Huckelrule.
6. List out the uses of biphenyl
7. Write the IUPAC names of

   CH_3CH_2Cl

   CH_3-CH-CH_3
   Cl
8. Give any two uses of cholorobenzene
9. Define wavelength
10. What is black body

SECTION – B (5 x 5 = 25)
Answer ALL questions

11. a) State and explain Fajan's rule.

(Or)

b) Define hydrogen bonding. Give the consequences.

12. a) Discuss the diagonal relationship between Li and Mg

(Or)

b) Explain about the froath floatation technique.

13. a) Elucidate the structure of naphthalene.

(Or)

b) Describe the preparation of antharacene.

14. a) Explain the general preparations of haloalkanes.

(Or)

b) Bring out the electrophilic aromatic substitution reactions of halobenzene

15. a) State and explain photoelectric effect.

(Or)

b) Discuss the physical significance of Ψ and Ψ^2

SECTION – C (3 x 10 = 30)
Answer any THREE questions

16. Draw and explain the molecular orbital diagram of N_2 and O_2

17. Explain the isolation and applications of inert gases

18. Describe the preparation properties and uses of benzene.

19. Explain the SN^1 and SN^2 mechanisms in haloalkanes with examples

20. a) Discuss the Bohr's model of hydrogen spectrum

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