

(DCHE01)

ASSIGNMENT-1
M.Sc. (Previous) DEGREE EXAMINATION, DEC. – 2017
(First Year)
CHEMISTRY
General Chemistry
MAXIMUM MARKS:30
Answer ALL Questions

- Q1)* Write the principles of NMR and ESR spectroscopy.
- Q2)* Describe the quantized energy levels of rigid rotor allowed transitions.
- Q3)* Discuss about Rotational fine structure of electronic vibration transitions.
- Q4)* Write a note on diatomic vibrating rotator.
- Q5)* Write about
- a) Control charts
 - b) Accuracy & precision
- Q6)* Explain propagation of errors
- Q7)* Write a note on Do statements.
- Q8)* Explain the List directed INPUT and OUTPUT statements

(DCHE01)

ASSIGNMENT-2
M.Sc. (Previous) DEGREE EXAMINATION, DEC. – 2017

(First Year)

CHEMISTRY

General Chemistry

MAXIMUM MARKS:30

Answer ALL Questions

- Q1)** a) Discuss :
- i) Spectra of rigid rotor
 - ii) Spectra of non – rigid rotor
- b) Explain Rotational spectra of diatomic molecules and discuss the effect of isotopic substitution on rotation spectra.
- Q2)** a) Describe the vibrational and rotational spectra of diatomic molecules.
- b) Explain the vibration spectra of an harmonic oscillator.
- Q3)** a) Discuss the theory of sampling and techniques involved in sampling.
- b) Write a note on
- i) Minimization of errors
 - ii) F – Test
 - iii) Computation rules
- Q4)** a) Write the programme for Beer's law by least squares method
- b) Draw the flow chart and write the programme for summing a power series.



(DCHE02)

ASSIGNMENT-1
M.Sc. (Previous) DEGREE EXAMINATION, DEC. – 2017

First Year

CHEMISTRY

Inorganic Chemistry

MAXIMUM MARKS:30

Answer ALL Questions

- Q1)* Describe the Planck's quantum theory.
- Q2)* Discuss orthogonality and normalization of wave functions.
- Q3)* Explain the approach of valence bond theory to H₂ molecule.
- Q4)* Describe VSEPR theory.
- Q5)* How do you determine the stability constants of complexes? Explain.
- Q6)* Discuss multiple bonding in complexes.
- Q7)* Write a note on Intercalation compounds.
- Q8)* Explain crystal field theories.

(DCHE02)

ASSIGNMENT-2

M.Sc. (Previous) DEGREE EXAMINATION, DEC. – 2017

First Year

CHEMISTRY

Inorganic Chemistry

MAXIMUM MARKS:30

Answer ALL Questions

- Q1)** a) Describe the L. - S. coupling of angular momenta and J – J coupling.
b) Write a note on :
i) Compton effect
ii) Term symbols
iii) Plank's temperature radiation law
- Q2)** a) Describe in detail about the types of solids.
b) Discuss :
i) Comparison of valence bond and molecular orbital methods.
ii) Different types of hybridization.
- Q3)** a) Write about
i) Chelate effect.
ii) Spectrochemical series.
iii) CFSE
b) Discuss the John – Teller effect on genetics of Oh complexes. Explain with suitable example.
- Q4)** a) Discuss the synthesis, properties and structures of Silicates and Boranes.
b) Write a note on :
i) Ligand substitution in octahedral complex.
ii) Electron transfer reactions.



(DCHE03)

ASSIGNMENT-1
M.Sc. (Previous) DEGREE EXAMINATION, DEC. – 2017

First Year

CHEMISTRY

Organic Chemistry

MAXIMUM MARKS:30

Answer ALL Questions

- Q1)* Explain various methods of resolution.
- Q2)* Explain about optical purity and explain about optical activity of biphenyls, allens.
- Q3)* Explain about carbocations.
- Q4)* Explain about classical carbocations rearrangements.
- Q5)* Explain Diazonium coupling.
- Q6)* Explain Hunsdiekar reaction.
- Q7)* Explain E_{ICB} mechanism.
- Q8)* Explain about reduction reactions of carbonyl compounds.

_(DCHE03)

ASSIGNMENT-2
M.Sc. (Previous) DEGREE EXAMINATION, DEC. – 2017

First Year

CHEMISTRY

Organic Chemistry

MAXIMUM MARKS:30

Answer ALL Questions

- Q1)** a) Explain with examples.
- i) Hyper conjugation
 - ii) Anti - aromaticity
 - iii) Homo aromaticity
- b) Explain
- i) Stereo selective synthesis
 - ii) Conformations of mono & di substituted cyclohexanes.
- Q2)** a) Explain generation and stabilities of carbanions and free radicals.
- b) Explain SN_1 & SN_2 mechanisms in detail.
- Q3)** a) Explain
- i) Arylation of Aromatics by diazonium salts
 - ii) Explain Hydration reaction in detail
- b) Explain
- i) Allylic halogenation
 - ii) Auto – oxidation
 - iii) Free radical re - arrangement
- Q4)** a) Explain about Aldol reaction and Benzoin condensation in detail.
- b) Explain about various factors effecting various elimination reactions.



(DCHE04)

ASSIGNMENT-1
M.Sc. (Previous) DEGREE EXAMINATION, DEC. – 2017

First Year

CHEMISTRY

Physical Chemistry

MAXIMUM MARKS: 30

Answer ALL Questions

- Q1)* State second law of Thermodynamics and write its applications.
- Q2)* Derive Thermodynamic Raoult's law
- Q3)* Explain the principle and applications of scintillation counters.
- Q4)* Explain the mechanism of nuclear reactions
- Q5)* Explain the properties and applications of insulators.
- Q6)* Explain Miller indices
- Q7)* Define Transportnumber. How do you determine Transport number of an electrolyte?
- Q8)* Explain Lindemann's Theory of reaction rates.

(DCHE04)

ASSIGNMENT-2
M.Sc. (Previous) DEGREE EXAMINATION, DEC. – 2017

First Year

CHEMISTRY

Physical Chemistry

MAXIMUM MARKS: 30

Answer ALL Questions

- Q1)** a) Explain partial molar Quantities.
b) Discuss the entropy changes in isolated systems in reversible processes.
- Q2)** a) Write the applications of radio isotopes in Medicine, agriculture and industry.
b) State and explain Bragg's equation and Bravis Lattices
- Q3)** a) How do you determine the emf of a cell without Transference.
b) What are Micelles and reverse Micelles? Explain their properties and mechanism of action
- Q4)** a) Explain the phenomenon of Fluorescence and phosphorescence. Write about Quantum yield of a photochemical reactions.
b) Write about the absolute theory of reaction rates.

