(DCHE21)

ASSIGNMENT-1

M.Sc.(Second) DEGREE EXAMINATION, MAY - 2018

(Second Year)

CHEMISTRY

Analytical Chemistry

MAXIMUM MARKS:30

Answer ALL Questions

Q1) State and explain Beer's law. What are its limitations?

Q2) Explain the instrumentation and working principle of nephelometry.

Q3) Define fluorescence. Write the factors affecting fluorescence. Write the applications of Fluorimetry.

Q4) Write the experimental procedure for flame photometry. Explain the possible errors in flame photometry.

Q5) Draw and explain the conductometric titration curve of a strong acid and strong base.

Q6) Write the principle and applications of electrogravimetry.

Q7) Explain chelate and ion association system in solvent extraction with examples.

Q8) Write about the oreparation of thin layer chromatographic plate (TLC). Explain the development methods in TLC.

(DCHE21)

ASSIGNMENT-2

M.Sc.(Second) DEGREE EXAMINATION, MAY - 2018

(Second Year)

CHEMISTRY

Analytical Chemistry

MAXIMUM MARKS:30

Answer ALL Questions

Q1) a) Describe the instrumentation and principles of Infra Red (IR) spectroscopy. Write the applications of IR spectroscopy for structure determination with examples.

b) Describe the working principle of UV-visible spectroscopy. How do you determine stability constants by UV-visible spectroscopy

Q2) a) Describe the instrumentation, principle and applications of atomic absorption spectrophotometry.

b) Explain the theory and working principle and basic instrumentation of fluorimetry.

Q3) a) Write the theory and working principle of potentio metric techniques. Explain its applications in precipitation reactions.

b) Describe the instrumentation, principle and applications of polarography.

Q4) a) Explain the instrumentation, principle and applications of HPLC

b) What are Ion-Exchangers? Explain the action of Ion-Exchangers and write their analytical applications.

(DCHE22)

ASSIGNMENT-1

M.Sc.(Second) DEGREE EXAMINATION, MAY - 2018

(Second Year)

CHEMISTRY

Inorganic Chemistry

MAXIMUM MARKS:30

Answer ALL Questions

Q1) Describe the synthesis of transuranium elements?

Q2) Describe the general properties of actinides?

Q3) What is intensity of transition?

Q4) Explain the diffraction by single crystal?

Q5) Describe the applications of NMR spectroscopy?

Q6) Explain the significance of 'g' factor?

Q7) Describe the classification essential elements?

Q8) Write notes on sodium pump?

(DCHE22)

ASSIGNMENT-2

M.Sc.(Second) DEGREE EXAMINATION, MAY - 2018

(Second Year)

CHEMISTRY

Inorganic Chemistry

MAXIMUM MARKS:30

Answer ALL Questions

Q1)a) Electronic configurations of lanthanides and actinides?

b) Describe the magnetic properties of lanthanides and actinides?

Q2) a) Describe the basic instrumentation of x-ray diffraction?

b) Discuss the principal and instrumentation of raman spectroscopy?

Q3) a) Explain the structure of some inorganic compounds by NMR spectroscopy?

b) Describe the principle and instrumentation of mass spectroscopy?

Q4) a) Explain the following

i) Role of essential elements
ii) Metal DNA interactions.

b) Describe the models for oxygen binding synthetic oxygen carries?

(DCHE23)

ASSIGNMENT-1

M.Sc.(Second) DEGREE EXAMINATION, MAY - 2018

(Second Year)

CHEMISTRY

Organic Chemistry

MAXIMUM MARKS:30

Answer ALL Questions

Q1) Write a note on Fieser-woodward rules for conjugated dienes.

Q2) Describe effect of hydrogen bonding in IR spectroscopy.

Q3) Explain nuclear over Hauser effect with an example.

Q4) Write about factor's affecting fragmentation in mass spectroscopy.

Q5) Explain photo chemistry conjugated olefins.

Q6) Briefly explain methods of analysis in pericyclic reactions.

Q7) Explain isolation to terpeneol.

Q8) Write the mechanism and migratory aptitude of Beckmann rearrangement.

(DCHE23)

ASSIGNMENT-2

M.Sc.(Second) DEGREE EXAMINATION, MAY - 2018

(Second Year)

CHEMISTRY

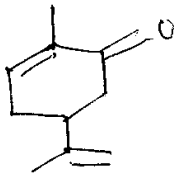
Organic Chemistry

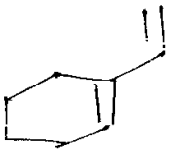
MAXIMUM MARKS:30

Answer ALL Questions

Q1) a) Calculate λ_{max} values of the following

i) ii)





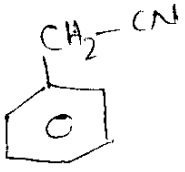
b) Explain the following

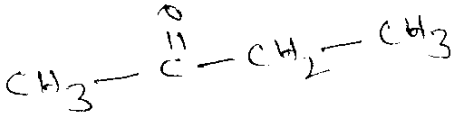
i) Fermi resonance

ii) Combination bands.

Q2) a) Predict the set of protons and H^1 NMR values of the following

i) ii)





b) Explain the following

i) Molecular ion

ii) Mc Lafferts rearrangement

Q3) a) Explain Norrish-I and Norrish-II reactions.

b) Sketch the correlation diagrams for 4n π electron of a system under thermal and photochemical conditions.

Q4) a) Illucidate the structure and synthesis of morphine.

b) Explain the following

i) Wagner-Meerwin rearrangement

ii) Neber rearrangement

(DCHE24)

ASSIGNMENT-1

M.Sc.(Second) DEGREE EXAMINATION, MAY - 2018

(Second Year)

CHEMISTRY

Environmental Chemistry

MAXIMUM MARKS:30

Answer ALL Questions

Q1) Write the principles of weathering.

Q2) Explain the factors affecting soil development.

Q3) How do you analyze carbon monoxide in air polluted sample?

Q4) What are the causes for acid rains and write the consequences of acid rains.

Q5) Explain water sphere

Q6) How do you determine nitrites in water samples?

Q7) Write the working principle and applications of pollution monitoring instruments.

(DCHE24)

ASSIGNMENT-2

M.Sc.(Second) DEGREE EXAMINATION, MAY - 2018

(Second Year)

CHEMISTRY

Environmental Chemistry

MAXIMUM MARKS:30

Answer ALL Questions

Q1) Explain the principle and applications of reverse osmosis

Q2) a) Write the determination of total nitrogen in soil samples.

b) Explain the nomenclature in the study of environmental chemistry.

Q3) a) How do you determine the oxides of nitrogen in air samples?

b) Explain air pollution due to particulate matter and photochemical smog.

Q4) a) Explain hydrological cycle in detail

b) Discuss the water pollution due to agricultural wastes and thermal wastes

Q5) a) How do you determine BOD in water samplies?

b) Explain the primary treatment methods of water. Write the water quality parameters of drinking water.