TAMIL NADU OPEN UNIVERSITY

Chennai - 15

School of Sciences

Department of Chemistry

HOME ASSIGNMENT

Programme Code No : **282**

Programme Name : **M.Sc. Chemistry**

Course Code & Name : **MCHE - 21 & Organic Chemistry - II**

Batch : **AY 2020-21 [2nd Year]**

No. of Assignments : **3 [One Assignment for each 2 credits]**

Maximum Marks : **15 [Average of total no. of Assignments]**

ASSIGNMENT-1

Max: 15 Marks

Answer any ONE of the following three questions in 1000 words

1) Discuss in details about the classification of Pericyclic reactions with examples.
2) Explain about the following reactions.
   (i) Di-π methane rearrangement
   (ii) Norish type I and II
   (iii) Paterno-Buchi
   (iv) Wolff rearrangement
3) Write notes on the Biosynthesis of following molecules
   (i) Menthol
   (ii) Camptothecin
   (iii) Camphor
   (iv) Nicotine

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ASSIGNMENT-2

Max: 15 Marks

Answer any ONE of the following three questions in 1000 words

1) Discuss in details about the following reactions with suitable examples.
   (i) Photooxidation

(ii) Photoreduction

(iii) Photodimerization

(iv) Photoaddition

2) Write the notes on the following rearrangement reactions with examples.

(i) Fries

(ii) Baeyer-Villiger

(iii) Wagner-Meerwein

(iv) Beckmann

(v) Lossen

3) Explain about the nomenclature of organic compounds.

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ASSIGNMENT-3

Max: 15 Marks

Answer any ONE of the following three questions in 1000 words

1) Describe the basic concepts involved in Photochemistry?
2) Discuss about the principle and concepts involved in NMR spectroscopy.
3) Write notes on the synthesis and reactivity of following molecules.

(i) Quinoline

(ii) Imidazole

(iii) Indole

(iv) Pyridine

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HOME ASSIGNMENT

Programme Code No : **282**

Programme Name : **M.Sc. Chemistry**

Course Code & Name : **MCHE - 22 & Inorganic Chemistry - II**

Batch : **AY 2020-21 [2nd Year]**

No. of Assignments : **3 [One Assignment for each 2 credits]**

Maximum CIA Marks : **15 [Average of total no. of Assignments]**

ASSIGNMENT-1

Max: 15 Marks

Answer any ONE of the following three questions in 1000 words

1) Describe the following.
   - (i) Hot atom chemistry
   - (ii) Stellar energy
   - (iii) Nuclear fission
   - (iv) Nuclear fusion
2) Give short notes for the following
   - (i) Labile and Inert complexes
   - (ii) Trans effect
   - (iii) Isomerisation and Racemisation
   - (iv) Conjugate base mechanism
3) Explain about the following with suitable examples.
   - (i) Koopman's theorem
   - (ii) ^{31}P NMR
   - (iii) Shift reagents
   - (iv) ^{19}F NMR

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ASSIGNMENT-2

Max: 15 Marks

Answer any ONE of the following three questions in 1000 words

1) Write notes on the following with suitable examples.
   - (i) Shell model of nucleus
   - (ii) Liquid drop model of nucleus
   - (iii) Types of nuclear forces
2) Discuss in details about the following reactions with suitable examples.
   - (i) Ligand displacement
   - (ii) Aquation
   - (iii) Anation

(iv) Acid hydrolysis

3) Describe the following salts.

(i) Rutile

(ii) Rock salt

(iii) Calcium chloride

(iv) Wurtzite

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ASSIGNMENT-3

Max: 15 Marks

Answer any ONE of the following three questions in 1000 words

1) Write about the basics and principles of the following spectroscopy techniques.

(i) IR

(ii) UV-Vis

(iii) Raman

2) Describe about the reactions in liq. NH_3, H_2SO_4, CH_3COOH, anhydrous HF, N_2O_4 and SO_2.

3) Write the notes on the following reactions with suitable examples.

(i) Polymerization

(ii) Decarboxylation

(iii) Carbonylation

(iv) Protonation

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School of Sciences

Department of Chemistry

HOME ASSIGNMENT

Programme Code No : **282**

Programme Name : **M.Sc. Chemistry**

Course Code & Name : **MCHE - 23 & Physical Chemistry - II**

Batch : **AY 2019-20 [2nd Year]**

No. of Assignments : **3 [One Assignment for each 2 credits]**

Maximum CIA Marks : **15 [Average of total no. of Assignments]**

ASSIGNMENT-1

Max: 15 Marks

Answer any ONE of the following three questions in 1000 words

1) Explain about the construction of character tables for C_2v and C_3v point groups.
2) Discuss about the following distributions.
    (i) Fermi-Dirac
    (ii) Boltzmann
    (iii) Bose-Einstein
3) Write the notes on the following Adsorption isotherms.
    (i) BET
    (ii) Frendlich
    (iii) Langmuir

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ASSIGNMENT-2

Max: 15 Marks

Answer any ONE of the following three questions in 1000 words

1) Describe the following.
    (i) Lasers
    (ii) Quantum yield
    (iii) Chemiluminence
    (iv) Photosensitization
    (v) Green house effect
2) Discuss in details about the following reactions with suitable examples.
    (i) Chain reactions
    (ii) Chain branching explosion reactions
3) Write the notes on the following surface reaction mechanisms.
    (i) Ely-Rideal
    (ii) Bimolecular
    (iii) Unimolecular
    (iv) Langmuir-Hinshelwood

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ASSIGNMENT-3

Max: 15 Marks

Answer any ONE of the following three questions in 1000 words

1) Explain about the following symmetries.
    (i) Proper axis of symmetry
    (ii) Centre of symmetry
    (iii) Plane of symmetry
    (iv) Improper axis of symmetry
2) Describe the following.
    (i) Chemical equilibrium
    (ii) Onsager's law
    (iii) Reversible/Irreversible processes
    (iv) Linear response theory
3) Discuss the following reactions with suitable examples.
    (i) Mechanism of enzyme inhibition
    (ii) Catalytic efficiency of enzymes
    (iii) Michaelis-Menten mechanism of enzyme catalysis

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