المواد المطالبين بها في الأمتحان التنفسي لنيل شهادة الدكتوراه- قسم الكيمياء

1- الكيمياء الحياتية:- أ.د. عباس دواس مطر

Glucose metabolism
glycogen metabolism

Disaccharides metabolism

2- Amino acids metabolism

Their chemical structures , classification and chemical reactions .

Chemical reactions of amino acids catabolism

3- Active chemical compounds

Secondary metabolism concept ,

Classification of secondary active compounds

Biochemical activity of secondary metabolites .

المصادر :

1- الكيمياء الحياتية – أ.د. عباس دواس مطر , 2016 , جامعة البصرة .

2- Text book biochemistry by T.M.Devlin.2011

2- الكيمياء التحليلية:- أ.د.كامل حسين علوان

IR spectroscopy

FTIR

Reference :-

Modern Analytical Chemistry

David Harvey , 2000

(( متوفر بنسخة الاكترونيه على النت

3-الكيمياءاللاعضوية:- أ.د.مؤيد يوسف كاظم

1- Coordination chemistry and isomers

2- Coordination complexes

3- Isomers

4- Stability of complexes

5- Magnetic properties of complexes

6- Electronic transitions of complexes

7- Valence bond theory

8- Crystal field theory

9- Molecular orbital theory

10 – Organometallic chemistry of transition elements

11- !8- electron rule

12- Stability of organometallic compounds

13- Alkenes organometallic

14- Alkyl and arylorganometallic

14- Metalocenes

15- Bonding in organometallic compounds

**References**

1- الكيمياء العضوية الفلزية تاليف طلال العلاف

2-المرحلة الثالثة في كليتنا )الكيمياء اللاعضوية ( الكتاب المنهجي لطلبة

3- محاظرات اللاعضوية لطلبة الدراسات ( العضوية الفلزية )

4- الكيمياء العضوية:- أ.د. تحسين عبدالقادر عبدالمحسن

**Heterocycles**

1.Nomenclature of Heterocyclic Compounds

2. Aromaticity and Basicity

3.mono heteroatom for five and six member ring

4.dihetro atoms for five member ring

**Intermediate and mechanizes**

1. Carbocation , stability and their reaction
2. Carbanions , stability and their reaction
3. SN1 , E1 , SN2, E2

Elimination reactions

5- الكيمياءالفيزيائية:- أ.د. بهجت علي سعيد

1. Thermodynamics and equilibrium.

2. Chemical Statistics.

3. Chemical kinetics.

4. The Schrodinger equation, the exact solutions of Schrodinger equation and approximation.

5. Spectroscopy:

molecular rotations, rotational levels and rotational transitions.

Molecular vibrations, harmonic and non-harmonic oscillators, vibrational energy levels, vibrational transitions.

Magnetic resonance: magnetic energy levels, the classical and the quantum descriptions of magnetic resonance phenomena, relaxation, the free induction decay, the [acquisition](https://www.google.com/search?client=ubuntu&hs=rLS&channel=fs&sxsrf=ALeKk02LV2xiusTUVfyCKGU66o0UgYzcYA:1586010076887&q=acquisition+of+nmr+spectra&spell=1&sa=X&ved=2ahUKEwiitfj5-87oAhXO0KQKHfXUAYQQkeECKAB6BAgNECU) of NMR spectra and nuclear Overhauser effect.

**Useful texts:**

1. Physical Chemistry W. J. Moore

2. Fundamentals of Molecular Spectroscopy C. N. Banwell and A. M. McCash

6- الكيمياء الصناعية:- أ.د.محمود شاكر حسين

Nomenclature of Polymers-

Molecular Weight of polymers-

Reaction of polymers-

-Step Polymerization

-Radical Chain Polymerization

Ionic Polymerization: -

Anionic Polymerization, Cationic Polymerization

Chain Copolymerization-

-Ring OpeningPolymerization