



الخطة الدراسية

العام الدراسي (2020-2021)

الكلية: التقنيات الطبية والصحية

القسم: تقنيات المختبرات الطبية

الأولى	المرحلة الدراسية
الكيمياء العامة	اسم المادة الدراسية باللغة العربية
General Chemistry	اسم المادة الدراسية باللغة الانكليزية
تعليم الطالبة كيفية اجراء التفاعلات الكيميائية	اهداف المادة
تعطي تصف المادة اساسيات الكيمياء العامة بجميع فروعها	وصف المادة
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4	عدد الساعات العملية
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Week	Syllabus
1	Introduction to analytical chemistry (matter , structure of atom , periodic table , bonds)
2	Methods of analysis Solution (preparation of standard solution unit, concentration , percentage , formal. Sol.
3	Molar solution , Normal solution
4	Statistical treatment of analytical data (accuracy , Mean value , deviation , standard deviation mean , value systematic errors , relative error , random and absolute error)
5	Chemical reaction (equilibrium constant , reaction rate , catalyst solubility , ionization.
6	Neutralization (acid base theory , PH , Buffers end point) Oxidation reduction Equilibria
7	Precipitation methods (gravimetry) formation of ppt. , type of ppt. agent titration , calculations
8	Spectroscopy (Optical spectroscopy , Beer's law)
9	Structure of carbon compounds (alkanes , alkenes , alkynes , halogen compound)
10	Alcohols , classification , properties reaction
11 , 12	Aldehydes and ketones properties reaction
13 , 14	Carboxyl acid , amines , Aromatic , Hydrocarbon
15	Nitro compound , sulphonic acids , Phenols , aromatic carboxyl acid , polynuclear hydrocarbon
16	Cells: The units of life: 1- Cells and membranes. 2- Prokaryotic and eukaryotic cells. 3- Subcellular organelles
17 , 18-	Carbohydrates: 1- Definition. 2- Biological functions. 3- Classification. 4- Digestion and absorption.

19 , 20-	<p>Lipids:</p> <ol style="list-style-type: none"> 1- Definition. 2- Biological functions. 3- Classification. 4- Digestion and absorption
21 , 22-	<p>Amino acids and Proteins:</p> <ol style="list-style-type: none"> 1- Definition. 2- Biological functions. 3- Classification. 4- Digestion and absorption.
23 , 24-	<p>Hormones:</p> <ol style="list-style-type: none"> 1- Definition. 2- Classification according to their chemical nature. 3- Names and physiological functions of hypothalamic, pituitary, thyroid, parathyroid, suprarenal, pancreatic and sex gland hormones
25 , 26-	<p>Nucleotides and Nucleic acids:</p> <ol style="list-style-type: none"> 1- Definition. 2- Classification of nitrogenous bases. 3- Biological functions of free nucleotides. 4- General structure and differences between DNA and RNA.
27 , 28-	<ol style="list-style-type: none"> 1- General properties of enzymes: <ol style="list-style-type: none"> a) active sites b) catalytic efficiency c) specificity d) cofactor e) regulation f) location within the cells 2- Factors affecting reaction velocity <ol style="list-style-type: none"> a) Substrate concentration b) Temperature c) Ph
29 , 30-	<p>Vitamins:</p> <ol style="list-style-type: none"> 1- Definition. 2- Classification (Water and Fat soluble vitamins).

	3- Members of each class as regards chemical nature, sources, daily requirement, biological function and abnormal conditions due to deficiency or toxicity
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المنهج المقرر / العملي

Weeks	Syllabus
1	Laboratory instruction , safety rule , equipments
2	Identification of some common inorganic cation
3	Identification of some common inorganic anions
4	Practic. With balances (preparation of different types of solutions. Percentage sol (w/v % , v/v % , w/w %) ppm
5	Normal solution , molar solution , dilution
6	Buffer solutions preparation and PH determination
7	Neutralization reaction (standardization of NaOH against standard HCL Determination of acetic acid in vinegar Determination of a mixture of carbonate , bicarbonate
8	Redox titration Titration of KMNO ₄ solution against oxalic acid
9	Precipitation reaction , determination of halides Cl-ion
10	Separation and purification of organic compound Distillation , extraction crystallization , sublimation
11	Determination of melting point Determination of boiling point
12	Reaction of some organic compounds (Aliphatic , aromatic alcohols phenols , aldehyde and ketone)
13	Aliphatic and aromatic carboxylic acid
14	Scheme for identification
15	Scheme for identification of solid organic compound
16	Carbohydrates (monosacharides) Molish test Benedict , Barfoid test , Bile , Selfanof test , Osazon test
17	Disacharides (hydrolysis of disaccharides by acids)

18,19	Polysaccharides Hydrolysis of polysaccharides by acids Hydrolysis of polysaccharides by saliva
20 , 21	Scheme for identification of unknown carbohydrate sol
22	Quantitative estimation of glucose by quantitative Benedict sol
23 , 24 , 25	Proteins Biuret test , Sakaguchi test , cysteine test Ninhydrin test , xantho protein test , Molish test
26 , 27	Precipitation of proteins (ionic strength PH , temp solvent)
28 , 29	Paper chromatography techniques
30	Thin layer chromatography techniques

المصادر:

1. Fundamentals of Analytical Chemistry, ninth edition and Douglas A. Skoog, Donald M. West.
2. Holt Chemistry, R. Thomas Myers, Keith B. Oldham and Salvatore Tocci.

المراجع :

المراجع المساعدة :