د- مقررات البرنامج :

أ- إلزامى : المستوى الأول / السنة الأولى : يلتزم 66 وحدة موزعة على النحو التالى :

إلزامى 66انتقالى 0اختيارى 0

كود أو رقم المقرر	اسم المقرر	عدد الوحدات	عدد الساعات الأسبوعية			الفرقة والمستوى	الفصل الدراسى
			نظرى	تمرين	عملى		
104ك	كيمياء عامة 1	7	3	0	4	الأولى	الأول ---------- الثانى
101ن	نبات عام	6	2	0	4		
101ح	حيوان عام	6	2	0	4		
101ج	جيولوجيا طبيعية وتاريخيه	4	2	0	2		
103ف	ضوءوكهربية ومغناطيسية	4	2	0	2		
105ر	تفاضل وتكامل وجبر	3	2	1	0		
105 ك	كيمياء عامة 2	7	3	0	4		
102ح	حيوان عام	6	2	0	4		
102ن	نبات عام	6	2	0	4		
104ف	حرارة وخواص مادة	4	2	0	2		
106ر	تفاضل و تكامل وهندسة	3	2	1	0		
102ل	لغة انجليزية	2	2	0	0		
102ج	بللورات ومعادن	4	2	0	2		

المستوى الثاني / السنة الثانية : يلتزم 68 وحدة موزعة على النحو التالى :

إلزامى 68 انتقالى0اختيارى0

كود أو رقم المقرر	اسم المقرر	عدد الوحدات	عدد الساعات الأسبوعية			الفرقة والمستوى	الفصل الدراسى
			نظرى	تمرين	عملى		
205ك	الديناميكا الحرارية الكيميائية	3	2	1	0	الثانية	الأول
206ك	كيمياء عضوية 1	6	2	0	4		
207ف	ضوء فيزيا ئى	4	2	0	2		
207ر	رياضيات	3	2	1	0		
بدون	حقوق الانسان والمبادئ القانونيه العامه	2	2	0	0		
201ن	نبات اقتصادى وطحالب وبكتريا	7	3	0	4		الثانى
201ح	حبليات و حشرات	7	3	0	4		
207ك	كيمياءغير عضوية	6	2	0	4		
208ك	كيمياء عضوية2	3	2	1	0		
208ف	فيزياء ذرية واطياف	4	2	0	2		
202ن	بيئة (غطاء نباتي وتربة وفسيولوجيا البذور وتصنيف زهري)	7	3	0	4		
208ر	علوم الحاسب	3	1	0	2		
202ح	لافقاريات وحشرات	7	3	0	4		
202ل	لغة انجليزية	2	2	0	0		

المستوى الثالث / السنة الثالثة : يلتزم 69 وحدة موزعة على النحو التالى :

إلزامى 69انتقالى0اختيارى0

كود أو رقم المقرر	اسم المقرر	عدد الوحدات	عدد الساعات الأسبوعية			الفرقة والمستوى	الفصل الدراسى
			نظرى	تمرين	عملى		

311ك	فيزيائية(ميكانيكيا التفاعلات والغازات)	3	2	1	0	الثالثة	الأول
312ك	غيرعضوية (العناصرالانتقالية والمتراكبات)	6	2	0	4		
313ك	عضوية (فيزيائية وفراغية)	7	3	0	4		
301ك ح	كيمياء المواد السكرية والدهنية	5	3	0	2		
302ك ح	كيمياء البروتينات والاحماض الامينية والفيتامينات	8	4	0	4		
338ر	حاسب	3	1	0	2		
306 ك	فيزيائية (السطوح والحفز والغرويات)- تحليلية (كمية ووزنية وخامات)	9	5	0	4		الثانى
323ك	عضوية (حلقية متجانسة)	6	2	0	4		
303ك ح	انزيمات وهرمونات	8	4	0	4		
304ك ح	التمثيل الغذاء للماء والعناصر وكيمياء الانسجة	7	3	0	4		
339ر	احتمالات واحصاء	1	1	0	0		
302ل	لغة انجليزية	1	1	0	0		

المستوى الرابع / السنة الرابعة: يلتزم 78 وحدة موزعة على النحو التالى :

إلزامى78انتقالى0اختيارى0

كود أو رقم المقرر	اسم المقرر	عدد الوحدات	عدد الساعات الأسبوعية			الفرقة والمستوى	الفصل الدراسى
			نظرى	تمرين	عملى		
417ك	كيمياء فيزيائية - كيمياء تحليلية	9	4	1	4	الرابعة	الأول --- الثانى
418ك	كيمياء عضوية	7	2	1	4		
402ك ح	كيمياء المناعة والاجسام المضاده وكيمياء الصناعات البيولوجيه	7	3	0	4		
403 ك ح	الصناعات الدقيقه والسوائل البيولوجيه الخمائر وأيض الغذاء العام	7	3	0	4		
419ك	كيمياء غير عضوية- كيمياء فيزيائية	9	4	1	4		
420ك	كيمياء عضوية	7	2	1	4		
404ك ح	وظائف حيوية وبيولوجيا الاورام طرق فصل المواد البيولوجية	8	4	0	4		
405ك ح	التحليل الضوئي والخلية النباتية - التركيب الكيميائي لافرازات الغدد الصماء	6	2	0	4		
بدون	بحث او مقال	2	2	0	0		
402ل	لغة انجليزية	1	1	0	0		
بدون	حاسب	3	1	0	2		

7 ـ محتويات المقررات:

كود أو رقم المقرر: 104ك
اسم المقرر: كيمياء عامة 1
المحتويات:

Part I: Physical Chemistry (2h/ w)
Introduction of physical chemistry, Gaseous state, Thermochemistry, Chemical equilibria, Solutions, Problems in physical Chemistry.
Part II: Inorganic Chemistry (1h/w)
Introduction of inorganic chemistry, Chemical calculations., Atomic spectra and atomic structures, Electronic configuration of atoms.
Part III: (Practical Chemistry) (4h/ w)

كود أو رقم المقرر: 101ن
اسم المقرر: نبات عام
المحتويات:

Part I: Theoretical (2h/w)
General characters of monocot and dicot plants, Types of seeds and germination, Different shapes of plant organs and their modifications, Adaptation of plants to different habitats, Study the organisms' diversity, Classification the organisms in Plant kingdom according to their specific characters, Study the general characters for each group in the classification using an example for each one.
Part II: Partical (4h/w)

كود أو رقم المقرر: 101ح
اسم المقرر: حيوان عام
المحتويات:

Part I: Theoretical (2h/w)
Introduction to zoology (physiology, cytology and histology), Bases of anatomy and essential physiological processes of human digestive, cardiovascular, respiratory and renal systems-Essential processes of human neurophysiology and General and Functional cytology, General and descriptive animal histology. External features and musculature of the experimental, Anatomy of nervous system of Egyptian toad Skeleton of Egyptian toad ,General histology (connective, muscular and nervous animal tissues, respiratory, endocrine, reproductive, skin, circulatory and excretor.
Part II: Practical (4h/w)

كود أو رقم المقرر: 101ج
اسم المقرر: جيولوجيا طبيعية وتاريخيه
المحتويات:

Part I: Theoretical (2h/w)
مقدمة فى علم الجيولوجيا، نشأة الكون ، التركيب الداخلى للأرض، التراكيب الأولية و الثانوية فى الصخور الرسوبية، علم المعادن، علم الصخور، التجوية الفيزيقية و الميكانيكية و الكيميائية، العوامل الهدمية و البنائية للرياح والكثبان الرملية واشكالها، البحار و المحيطات ، المياة الجوفية، الزلازل والبراكين ونظرية الألواح التكتونية، مراجعة عامة
Part II: Practical (2h/w)

كود أو رقم المقرر: 103ف
اسم المقرر: ضوء وكهربية ومغناطيسية
المحتويات:

Part I: Geometrical optics
Nature of light, Refraction through lenses, Optical instruments, Dispersion, Photometry.
Part II: Electricity
Charge and matter, Coulomb's law, Electric field, Electric field for a group of point,

Electric field of continuous charges, Electric dipole, Electric potential and applications, Electric potential and applications, Condensers, Coulomb's law,Electric field, Electric dipole and transient current, Dielectric current and Static magnetism, Electromotive forces and induction.

Part III: Practical

convex lenses, concave lenses, convex mirrors, concave mirros, liquid lenses, triangular prism, Jouly's photometer, Ohm's law, The relation between the filament's current and the applied voltage, The sensitivity of a galvanometer, The current leakage, Determination the resistance of a voltmeter, The horizontal component of the magnetic field of the earth, The magnetic field distribution of a small magnet.

كود أو رقم المقرر: 105ر
اسم المقرر: تفاضل وتكامل وجبر
المحتويات:

المتباينات ـ النهايات والاتصال ـ المشتقات ـ تطبيقات على المشتقات ـ الاستنتاج الرياضي ـ الكسور الجزئية

كود أو رقم المقرر: 105ك
اسم المقرر: كيمياء عامة 2
المحتويات:

Part I: Physical Chemistry (1h/ w)

Physical chemistry ,The Phenomena of electrolysis, Faraday's laws, Electrical conductance, EMF., Electrode potential, Chemical and electrical energy.,Cell reaction and electrochemical series, Solid state and crystallographic systems.

Part II: Inorganic Chemistry (2h/ w)

1Periodic table and the general properties of representive elements., Types of chemical bonds, The VSEPR model, Lewis acids structure and formal charge, Theories of bonding – valence shell electron pair repulsion (VSEPR), Valence bond theory (VBT), molecular orbital theory (MOT) and molecular geometry, Oxidation-reduction reactions.

Part III: Practical Part (4h/w)

كود أو رقم المقرر: 102ح
اسم المقرر: حيوان عام
المحتويات:

Part I: Theoretical (2h/w)

Instruments in taxonomy, Bases of taxonomy, Five kingdoms theory, General characters and taxonomy of Sarcodina and Ciliophora, General characters and taxonomy of Zoomastigophora and Apicocomplexta ,General characters and taxonomy of Porifera, General characters and taxonomy of Hydrozoa and Scyphozoa, General characters and taxonomy of Anthozoa, General characters and taxonomy of turbellarians, General characters and taxonomy of monogeneans, General characters and taxonomy of Cestoda,General characters and taxonomy of Nematoda.

Part II: Practical (4h/w)

كود أو رقم المقرر: 102ن
اسم المقرر: نبات عام
المحتويات:.

Part I: Theoretical (2h/w)
Colloids, Plant cell, Diffusion, Osmosis an Permeability, Plant water relationships, Enzymes, Photosynthesis, Respiration, Plant Growth, Plant cell components (living and non-living), Cell wall, Simple tissues (Meristematic and permanent), Epidermal tissues and complex tissues, Plant organs (monocot & dicot), stem, root and leaves, Secondary structures in plant, Periderm, Tylosis ،Lenticels
Part II: Practical (4h/w)

كود أو رقم المقرر: 104ف
اسم المقرر: حرارة وخواص مادة
المحتويات:

Part I: Heat
Temperature and thermometers, Heat estimation , Thermal expansion , Change of phases, Heat transfer , Kinetic theory of gases.
Part II: Propeties of matter
Units and dimensions Fundamental units - Derived units - Dimension theory and its applications Scaler and vectors -Linear motion - Planer motion - Newton`s second law- Simple harmonic motion –Simple Monent of inertia for some bodies- Simple pendulum- Hook`s law-Elasticity modulii-Relation between elasticity modulii-Stress-Strain curves - Pressure-Pascal`s rule-Archimede`s rule- Bernoulli`s equation - Surface tension- Bernoulli`s equation - Viscosity Poiseuill`s formula- Stokes law.
Part III: Practical
The Joul's coefficient, The specific heat of a solid using mixing method, The latent heat and temperature of an amorphous material, The Newton's law for cooling, Searl's method in heat, The simple pendulum, The Young's modulus of a wire, The Hook's law, The Stock's law of viscosity, The Poissel's law of viscosity.

كود أو رقم المقرر: 106ر
اسم المقرر: تفاضل وتكامل وهندسة
المحتويات:

مجموع تكامل ريمان - تكامل ريمان - طرق التكامل - تكامل الدوال المثلثيه - تطبيقات التكامل - المساحه - طول المنحني - الحجم - الخط المستقيم - الدائرة

كود أو رقم المقرر: 102ل
اسم المقرر: لغة انجليزية
المحتويات:

Writing paragraphs, topic sentence, countable and non-countable nouns, , punctuation, the use and non-use of articles, using a relvative clause, Some selected topics (Types of common rocks, animal cell structure , solar energy , cohesion energy, signals and lighting.

كود أو رقم المقرر: 102ج
اسم المقرر: بلورات ومعادن
المحتويات:

Part I: Theoretical (2h/w)
Crystallography, External structure of crystals, X-Ray crystallography & Mineralogy, its applications. Crystal, Elements of crystals: Facies, Edges ،Solid angles, Interfacial angles, Low of constancy of interfacial angles ،Contact goniometer & Reflection goniometer, crystal habit, Crystal form" Order", crystal elements, Axial cross, Crystallographic axes, Crystallographic angles .
Crystal symmetry, Elements of symmetry: Axes ،-Plane-, Centre-of symmetry, Rotation symmetry axes & Rotation inversion symmetry axes, Axial ratio, Parameters, Indices, Miller indices, Crystal system & Crystal classes, Orthogonal projection & Clinographic parallel perspective ،
Crystal systems (I): Cubic "Isometric ،"Tetragonal, Hexagonal, Trigonal.
Crystal systems (II): Orthorhombic, Monoclinic ،Triclinic.
Hemihedral & Holohedral forms, Hemimorphism & Pyroelectricity Enantiomorphism & Optical active, Zone & Zone axis, Crystal aggregates (regular & irregular), Twinned crystals وIntroduction to mineralogy, Physical properties of minerals, Classification of minerals, Silicate minerals structure. Revision.
Part II: Practical (2h/w)
Crystal Symmetry, Miller indices, Crystal forms, Cubic system, Tetragonal - Orthorhombic systems Triagonal - Hexagonal systems, Monoclinic – Triclinic systems, Physical properties of minerals ,

Identification of minerals through hard speciemen, Revision

كود أو رقم المقرر: 205ك
اسم المقرر: الديناميكا الحرارية الكيميائية
المحتويات :

Introduction of thermodynamics, First law of thermodynamics, Second law of thermodynamics, Third law of thermodynamics, Chemical equilibrium in solids,Entropy relations

كود أو رقم المقرر: 206ك
اسم المقرر: كيمياء عضوية (1)
المحتويات :

Part I: Theoretical Part (2h/w)
Introduction of organic compounds, Nomenclature of organic compounds, Chemistry of hydrocarbons, Chemistry of alkyl halides, Chemistry of Alcohols, Chemistry of Aldehydes and ketones, Chemistry of Acids, Chemistry of acids derivatives, Chemistry of amines, Chemistry of ethers
Part II: Practical Part (4h/ w)

كود أو رقم المقرر: 207ف
اسم المقرر: ضوء فيزيائي
المحتويات :

Part I: Physical optics

Simple harmonic motion, Interferences, Diffraction of light, Polarization of light.

Part II: practical

Determination of the wavelengths of a mercury lamp using a diffraction grating-Determination of the wavelength of a sodium lamp using Newton's rings-Determination of the wavelength of a monochromatic light using Michelson interferometer ,Specific rotation (Polarimeter) ,Abbe's refractometer ,Microwave optics, Diffraction of laser

كود أو رقم المقرر: 207ر
اسم المقرر: رياضيات
المحتويات :

Polar coordinates and its applications - The function of two variables, continuity, the derivation and applications - Study of double integration in different coordinates - Improper integrals - Leibniz's, Taylor and Maclaurin theories

كود أو رقم المقرر: بدون
اسم المقرر: حقوق الانسان والمبادئ القانونيه العامه
المحتويات :

Identification of human rights and its international importance, Types of human rights, Human rights in Islam religion and comparative legislation , Mechanisms of human rights protection

كود أو رقم المقرر: 201 ن
اسم المقرر: نبات اقتصادى وطحالب وبكتريا
المحتويات :

Part I: Theoretical (3h/w)
Introduction to economic plants and their classification on the basis of their use., Fibers and fibrous plants, Drink plants and Latex and Gum, Medicinal plants, drugs and antibiotics and Volatile and non-volatile oils, Spices and Condiments, Gums and Resins and Tannins and Dyes, Introduction to bacteria, The bacterial cell shapes, sizes and arrangement), Chemical composition of bacterial cell,Bacterial nutrition, Bacterial endospore, Reproduction of bacteria,Bacterial growth, physical and chemical factors affecting the bacterial growth,Phytoplankton, Reproduction and life history in algae., Benthos, Utilization of algae, Algal nutrition., lassification of algae, Different groups of algae
Part II: Practical (4h/w)

كود أو رقم المقرر: 201ح
اسم المقرر: حبليات وحشرات
المحتويات :

Part I: Theoretical (3h/w)
1-Basis of chordates taxonomy, Cephalochordata, General Characters and taxonomy of Agnatha, Characters and taxonomy of Chondrichthyes, Characters and taxonomy of Osteichthyes, Characters and taxonomy of Amphibia, Characters and taxonomy of Reptilia, Characters and taxonomy of Aves, Characters and taxonomy of Mammalia, Introduction to insects, Systematic position and general characters of 10- Introduction to insects, General insect morphology ,General insects anatomy (notes about all systems in insect ,Bionomics and Metamorphosis of locust or 13-Cockroach
Part II: Practical (4h/w)

كود أو رقم المقرر: 207ك
اسم المقرر: كيمياء غير عضوية
المحتويات :

Part I: Inorganic Chemistry (2h/ w)
1-Introduction to S,P- block, Hydrogen and hydrides, Chemistry of Group I to VII, Chemistry of Group 0.
Part II: Practical Part (4h/ w)
Introduction of volumetric analysis, Preparation of standard solutions, Standardization of HCl, Titration of strong acid against strong base, Titration of strong acid against weak base, Titration of weak acid against strong base; determination of the % of acetic acid in vinegar., Analysis of Carbonate and bicarbonate mixture, Analysis of $H_3PO_4 + CH_3COOH$ mixture, Analysis of H_3PO_4 + HCl mixture,Introduction of Redox reactions; Standardization of oxalic acid, Determination of H_2O_2 , Determination of Fe(II) , Iodometric and Iodimetric titrations , Precipitation titrations.

كود أو رقم المقرر: 208ك
اسم المقرر: كيمياء عضوية (2)
المحتويات :

I: Theoretical Part (2h/w):
a: Aromatic Compounds (1h/ w)
Nomenclature of aromatic compounds, Methods for preparation of benzene and it's derivatives, Reaction of benzene ring, Phenols, Aromatic alcohols, Aromatic aldehydes and ketones, Aromatic carboxylic acids, Aromatic amines.
b: Bi-functional compounds (1h/ w)
1- Introduction and classification, Nomenclature of the bi-functional compounds, Diol, preparation and properties, Diketones, preparation and proprieties, Hydroxy aldehydic compounds, preparation and proprieties, Hydroxy acid compounds, preparation and proprieties, Dicarboxylic acid compounds, preparation and proprieties, Diamine compounds, preparation and proprieties, β-keto ester compounds, preparation and proprieties.
Part II: Tutorial (1h/ w)

كود أو رقم المقرر: 208ف
اسم المقرر: فيزياء ذرية واطياف
المحتويات :

Part I : Atomic physics
Cathode ray, Electromagnitic radiation, Spectra, Atomic models, Atomic hydrogen spectra, Bohr theory& hydrogen atom, Summerfield theory, Spectra of hydrogen like ions, Fine structure spectra of alkali atom, Photo elctric effect , X-ray
Part II: practical
The young's modulus of a bent bar by two methods, The Young's modulus of a wire by Searl's method, The shearing modulus of a wire by two methods, The air track, The compound pendulum

كود أو رقم المقرر: 202ن
اسم المقرر: بيئة (غطاء نباتي وتربة وفسيولوجيا البذور وتصنيف زهري)

المحتويات:

Part I: Theoretical (3h/w)
Chemical composition of seed, Toxins in seeds, Dormancy, Physiology of seed germination, Utilization of food reserves for seedling growth, Phytohormon, Definition of Plant Ecology – Population, Community and Ecosystem- Ecological amplitude, Factors of the Environment, Origin and Development of Vegetation–Succession of Vegetation: hydrosere , xerosere , Field Studies of Vegetation, Soil Physical & chemical properties, Soil organic matter and humus , Plant Taxonomy: Principals of plant taxonomy, Types and Structure of flowers, inflorescence and fruits, Pollination / Fertilization , Representative families of Monocots, Representative families of Dicots.
Part II: Practical (3h/w)

كود أو رقم المقرر: 208ر
اسم المقرر: علوم الحاسب
المحتويات:

Theoretical Part (1h/w):
Introduction to high level programming language, Data type part1, Data type part2,, Handing errors, Statements and tolls part 1, Statements and tolls part 2 , Dealing with arrays part 1,
Dealing with arrays part 2, Functions and subroutines part 1, Functions and subroutines part 2, Dealing with files part 1, Dealing with files part 2, Other topics (e.g. design, menu, events, ……..) part 1, Other topics (e.g. design, menu, events, ……..) part 2,
Practical Part (2h/w)

كود أو رقم المقرر: 202ح
اسم المقرر: لافقاريات وحشرات
المحتويات :

Part I: Theoretical (3h/w)
Introduction to coelomic invertebrates**,** Phylum Annelida**,** Phylum Arthropoda part 1**,** Phylum Arthropoda part 2**,** Phylum Mollusca**,** Phylum Echinodermata part 1**,** Phylum Echinodermata part 2**,** Importance of coelomic invertebrates**,** Position of head capsule and head appendages**,** Forms of thoracic segment and types of appendages**,** The abdomen and its appendages (visceral, caudal and genital appendages)**,**Types of metamorphosis, larvae and pupae
Part II: Practical (4h/w)

كود أو رقم المقرر: 202ل
اسم المقرر: لغة انجليزية
المحتويات :

Some selected topics, namely, liquids and gases, the origins of life, the universe, the weather, electricity and magnetism, smoking, drugs, alcohols, colors, light, sound , elements and the composition of matter.

كود أو رقم المقرر : 311ك
أسم المقرر : كيمياء فيزيائية (ميكانيكيا التفاعلات والغازات)
المحتويات :

Part I: Chemical kinetics (1h/ w)
Rate of reactions-molecularioty and order of reaction, The determination of the reaction order (zero,first, second and third order), kinetics of simultaneous reactions, energy of activation, Arrhenius equation, A theoretical approach of chemical kinetics.
Part II: Kinetic theory of gases (1h/ w).
Kinetic theory of gases, ideal and non-ideal gas model, Liquifaction of gases – critical prameters, Boyl's temperature and Joule -Thomson effect, Virial coefficient and law of correspondence., Mean free path ,collision frequencies and barometric formula.

كود أو رقم المقرر : 312ك
أسم المقرر : كيمياء غيرعضوية (العناصرالانتقالية والمتراكبات)
المحتويات :

I: Theoretical Part
a: Transition metal chemistry (1h/ w)
General properties of transition metal (d-block elements)- Chemistry of scandium, titanium, vanadium, chromium, magnanese, iron, cobalt, nickel, copper and zinc groups in term of their electronic configuration, different oxidation states- Physical and chemical properties of the elements and their compounds structure of some important compounds – isolation of elements – uses and applications.
b: Coordination Chemistry (1h/ w)
Classification of ligands and complexes, Nomenclature – coordination number and stereochemistry of complexes, Preparation and detection of complexes, nature of metal – ligand bonding in complexes, Werner theory of coordination chemistry, Stereochistry of complexes- Isomerization of inorganic complexes, Stability of complexes.
II: Practical Part (4h/ w)

كود أو رقم المقرر :313ك
أسم المقرر : كيمياء عضوية (فيزيائية وفراغية)
المحتويات :

Part I: Physical Organic Chemistry (2h/ w)
Bond Polarity and Inductive Effect, Resonance Effect and Hyperconjugation , Aromaticity., Hydrogen Bonding, Electrophilic Addition, Free Radical Addition, Acidity of carboxylic acids, Acidity of Phenols, Acidity Carbon Acids, Organic Bases, Nucleophilic substitution, Elimination Of Haloalkane , Dehydration of Alcohol.
Part II: Steorochemistry (1h/ w)
Introduction of stereochemistry of organic compounds- Chirlity's resolution and analysis of enantiomers and diastereomers- Conformational isomerism and geometrical isomerism- Introduction to stereo selective synthesis and drug design- Stereo selectivity in nature and spectroscopic determination of relative and absolute chirality's.
Part III: Practical Part (4h/ w)

كود أو رقم المقرر :301 ك ح
أسم المقرر : كيمياء المواد السكرية والدهنية
المحتويات :

Theoretical part (3h/w):
Part I: Carbohydrate (2 h/w)
- Classification ,nomenclature of cabohydrates and their biomedical importance.
- Monosaccharides(classification,configuration and conformation)
- Cyclic structure of sugars , chemical properties of simple and derived monosaccharides and their biological importance.
- Disaccharides and trisaccharides.
- Homopolysaccharides :structural polysaccharides (cellulose and chitin), storage polysaccharides (starch and glycogen)
- Heteropolysaccharides: glycosaminoglycans (hyaluronic acid, chondroitin sulfate, heparin) , glycoprotein: structure and function.

- Proteoglycans ,aminosugars, bacteria cell walls and gangliosides.

Part II . Lipids: (1 hr/w)

General characterization and classification of lipids and fatty acids , nomenclature: (neutral fats, fatty acids, glycerol, physical and chemical properties of fatty acids, essential fatty acids)- Physical and chemical properties of fats and oils, reaction of fats and oils due to unsaturation-Rancidity , analysis and identification of fats and oils , aliphatic alcohols and waxes-Compound lipids: phospholipids, plasmalogens , phospholipids not containing glycerol : sphingolipids. Glycolipids, lipoprotein systems ,steroids: cholesterol, 7-dehydrocholesterol,ergosterol.Physiological important role of steroids-Carotenoids-Lipid peroxidation is a source of free radicals. Antioxidants : Naturally occurring antioxidants include : Vitamin E(tochopherol and vitamin C (ascorbic acid).

Paractical Part : (4h/w)

Part I:

- Reactions of carbohydrates in acid solutions: (Molisch's test, hydrochloric acid test, Barafoed's test)
- Reactions of carbohydrates in alkaline solutions: (Fehling's and Bendict's) , identification of some reducing sugars by their ozasones.
- Acid hydrolysis for disaccharides ,Silwanoff's test, mucic acid test , Bial's test , fermentation test and mutarotation of glucose .
- Polysaccharides (starch, dextrin and glycogen), solubility and iodine test
- Precipitation by alcohol , half & full saturation tests
- Guide for the identification of carbohydrates & revision.

Part II:

- Lipids and related compounds (solubility,grease stain test,copper acetate test ,detection of rancidity in neutral fats and oils) , addition reactions for unsaturated fatty acids.
- Reactions of soap, cholesterol, salkowski test, Liebermann and burcharol test .
- Glycerol(dunstan's and acrolein's test) , the preperation of cholesterol.
- Quantitative analysis of lipids and revision.

كود أو رقم المقرر : 302 ك ح

أسم المقرر : كيمياء البروتينات والأحماض الأمينية (ورقة أولى) - الفيتامينات (ورقة ثانية)

المحتويات :

Theoretical part (4h/w):

Part I: Proteins and amino acids (2h/w)

- The amino acids building blocks of proteins , the common amino acids of protein , classification of amino acids, the rare amino acids of proteins , non protein amino acids , the acid-base properties of amino acids.
- The stereochemistry of amino acids, absorption spectra, the chemical reactions of amino acid, analysis of amino acids mixtures.
- Proteins:covalent backbone and amino acid sequence, the structure of peptides, peptides of non-protein origin, acid-base properties of peptides, optical & chemical properties of peptides , steps in the determination of amino acid sequences.
- Cleavage of disulphide bonds and separation of polypeptide chains, complete hydrolysis of polypeptide chains &determination of amino acid composition, identification of the N-terminal residue of a peptide , identification of the C-terminal residue of a peptide.
- Partial hydrolysis of polypeptide chains with enzymes with cyanogen bromide , amino acids homopolymers,separation and analysis of peptide fragments.
- Proteins: three-dimensional conformation : (configuration and conformation,fibrous proteins , the keratins, x-ray analysis of keratins , the α-helix and the structure of α-keratins and β-keratins.
- Ramachandran plot, β-conformation and the pleated sheet, collagen.
- Tropomoysin, elastin, tertiary structure of globular proteins, denaturation of proteins.
- Myoglobin, specification of the tertiary structure of globulin, determination of the 3ry structure of globular protein by their amino acid sequence.
- The quaternary structure of globular proteins, heme prosthetic group, hemoglobin and the derivatives of hemoglobin.
- Proteins : purification and characterization.

Part II: vitamins (2h/w)

- Structure and function of the water soluble vitamins(thiamin, riboflavin, niacin, pantothenic acid, vitamin B6, biotin, vitamin B 12 , folic acid and vitamin C)
- Biomedical importance of vitamins.
- Structure and function of the lipid soluble vitamins (vitamins A,D,E,K) and their biomedical

importance.

Practical part (4h/w):

part I:

- Tests for proteins, general chemical reactions
- Colour reactions, Biuret's test, Xanthoproteic reaction, Millon's reaction and sulphur test .
- Physical properties (solubility of proteins , gel formation)
- Precipitation of proteins (precipitation by heat, fractional precipitation of proteins by concentrated salt solutions)
- Heller's test, precipitation by heavy metals salts and complex acids.
- Application on albumin, casein, gelatin, globulin, peptone, scheme for the identification of proteins.
- Urea & uric acid
- Scheme for simple unkown solids .

Part II :

- Fat-soluble vitamins : (the effect of ultraviolet on vitamin A, prepration of the D vitamin by irradiation of their precursors with ultraviolet).
- Estimation of vitamin K.
- Water-soluble vitamins(detection of vitamin C by qualitative and quantitative methods)
- Estimation of vitamin C by iodate solution, dichlorophenol, and the quantitative analysis of riboflavin.

كود أو رقم المقرر : 338ر
أسم المقرر : حاسب
المحتويات :

Review the basics of database concepts: relational vs. flat database, database design techniques, relational database structure, and data retrieval. ,Identify primary keys, foreign keys, relationships between tables and referential integrity. ,Explain creating, deleting and adding relationships. ,Define creating relations and join in queries. ,Differentiate between select queries and crosstab queries. ,Demonstrate creating action queries. ,Dealing with SQL. ,Explain macros and events. ,Apply Visual Basic modules. , Explain and demonstrate Internet features of Access.

كود أو رقم المقرر :306 ك
أسم المقرر : كيمياء فيزيائية(السطوح والحفز والغرويات)
المحتويات :

Physical chemistry part (3h/w)
Part I: Surface Chemistry (1h/ w)
1- Solid-gas interface, BET equation-Langmuir, Frendlish equations, surface area determination, pore structure-solid-liquid interface, langmuir model, Truaube's rule.
Part II: Catalysis (1h/ w)
1- Homogeneous catalysis, Intermediate theory of catalysis, acid base catalysis. enzyme catalysis
2- Heterogonous catalysis, kinetics and mechanisms, Theory of contact catalysis, absolute rate of surface reaction – surface heterogeneity- acid catalysis.
Part III: Colloidal Chemistry (1h/ w)
1- Introduction of colloidal chemistry – polydispersity in colloidal system.
2- Osmotic pressure, light scattering (tyndall effect) and sedimentation methods for measuring particale size and particle weight.
3- preparation and stability of colloidal solutions.
Analytical chemistry part (2h/w)
1- Neutralization Titrations, Oxidation-Reduction Titrations, Precipitation Titrations, Complexation Titrations.
Practical Part (4h/ w)

كود أو رقم المقرر : 323 ك
أسم المقرر :كيمياء عضوية (حلقية متجانسة)
المحتويات :

Theoretical Part

Introduction, Nomenclature of cyclic hydrocarbons, Strain energy of alicyclic hydrocarbons, Bonding in cycloalkanes – angle strain and torsional strain, Consequences of angle strain for cyclic compounds, Stereochemistry and cyclic hydrocarbons, Conformations of cyclohexanes, Axial and equatorial hydrogens in cyclohexane, Conformational equilibria for monosubstituted cyclohexanes, Drawing structures of cyclohexane, Disubstituted cyclohexanes, Reactions of cyclic hydrocarbons, Preparations of cyclic hydrocarbons- small-ring cycloalkanes, Preparation of cyclohexanes - the Diels - Alder reaction

Practical Part

كود أو رقم المقرر: 303 ك ح
أسم المقرر : الانزيمات والهرمونات
المحتويات :

Theoretical part (4h/w):

Nomenclature & classification of enzymes , Enzymes active sites & catalytic cycle of enzymes, Lock & key Model, Induced – Fit Model of enzyme action, Factors affecting enzyme activity (Temperature, pH, Enzyme concentration, Substrate concentration & Inhibitors) , An introduction to Enzyme kinetics. Introduction to endocrinology, Sites of hormone production, Mechanisms of Hormonal action & cell signaling, Pituitary gland hormones (Hormones of Anterior lobe of Pituitary gland) , hormones of middle & posterior lobes of pituitary gland , thyroid gland hormones, hypothyroidism & hyperthyroidism , parathyroid gland hormones, hypoparathyroidism& hyperparathyroidism , pancreatic gland hormones , gastric hormones & gonadal hormones & placental hormones.

Practical Part

introduction and classification of enzymes.

Relationship between the enzymatic activity and temperature, concentration , pH of the reaction.

Rennin action on milk clotting ,specificity of enzyme action (relative and absolute substrate specificty .

Estimation of alkaline phosphatase, acid phosphatase in serum.

Non-competitive inhibition of catalase in blood, estimation of α-amylase activity in serum, saliva amylase digesion of starch and the achromic point , factors affecting salivary amylase ,principle of hormonal assay, revision.

كود أو رقم المقرر : 304 ك ح
أسم المقرر : التمثيل الغذائى للماء والعناصر وكيمياء الانسجة
المحتويات :

Theoretical part (3h/w):

Part I: Water and minerals metabolism (1h/w)

biological importance of water , dehydration and edema- Iron and its contribution to hemoglobin and biomolecules , factors which affecting iron absorption -Calcium (function, regulation, sources, daily requirements, rickets and osteoporosis), sodium (function, hyper- and hyponatremia)- Potassium (absorptin and mormal levels) , sulphur, copper (function , ceruloplasmin, sources and daily requirements), potassium and sodium balance- General features of water and minerals metabolism and their disorders, Role of microminerals in human body , correlation of minerals and diseases , revision.

Part II: Histochemistry (2h/w):

1-General histochemical techniques , Tissue chemistry , Immunohistochemistry, Cancer biology, Connective tissues, Collagen , elastin, fibronectin, proteoglycan and others. Muscles (an Overview of muscle contraction , The contractile system), The role of ATP in contraction (The mechanism of contraction, Sources of energy for muscular work), Adipose tissues and the role of liver in lipid metabolism, Bone structures and functions .

Practical Part (4 h/w):

Introduction, estimation of ammonia in urine, estimation of chloride in urine, estimation of serum iron- Estimation of inorganic phosphrous in urine and serum ,estimation of calcium in serum and urine, estimation of magnesium in blood- Estimation of urea in urine and serum , estimation of urinary protein by Brand Berg- Roberts- Stolnikov method, principles of histo-and immunohistochemical techniques, principles of flourcytometry and tumor markers assays- Estimation of calcium by Clark & Collip method in urine.

كود أو رقم المقرر : 339 ر
أسم المقرر : احتمالات و احصاء
المحتويات :

Descriptive statistics: frequency tables - measures of central tendency, measures of dispersion, standards sprains and kurtosis, regression and correlation, introduction to probability theory, the definition of probability ,probability axioms, fundamental principles of harmonic analysis, the conditional probability and independence, the law of total probability and bayes.

كود أو رقم المقرر : 302ل
أسم المقرر : لغة انجليزية
المحتويات :

Prefixes , suffixes, relative clauses, adjectives and adverbs. writing a summary, summarizing process and the summary reports. Some selected topics, nemally, the migration of birds, coral reefs, smuggling of nuclear materials, chemical reactions and roots.

كود أو رقم المقرر : 417 ك
أسم المقرر : كيمياء فيزيائية- كيمياء تحليلية
المحتويات :

Part I: Physical chemistry (2h/w):
A- Electrochemirsty (1h/w)
Reversible and irreversibll cells, Cell reaction and emf, Nernst theory of electrode potential, Single electrode potential, Thermodynamics and emf, Classification of electrodes, Eectrochemical cells, Some applications of emf measurements.
B- Photochemirsty (1h/w)
Radiative processes, Nonradiative processes, Applications of triplet state.
Part II: Analytical chemistry (2h/w):
A- Instrumental analysis (1h/w)
Electromagnetic radiation, Beer-Lambert's law, Spectrophotometer components, Ideal situation for UV-Vis spectrophotometric analysis, Qualitative and quantitative applications of spectrophotometry,Solvent extraction,Column Chromatography,Efficiency of separation.
B- Electroanalytical chemistry (1h/w)
Potentiometry,Reference electrodes, Membrane indicator electrodes, Potentiometric techniques and applications, Principles of electrolysis,Coulometry.
Part III: Practical (4h/w)

كود أو رقم المقرر : 418ك ح
أسم المقرر : كيمياء عضوية (كيمياء حلقية غير متجانسة-منتجات طبيعية)
المحتويات :

I: Theoretical Part (2h/w):
a: Heterocyclic Chemistry (1h/ w)
Common name of different heterocycles synthesis and reaction- Five membered heterocycles with one heteroatom (furan ,pyrrole and thiophene)-Synthesis and reaction of five membered -Synthesis and reaction of six membered rings with one heteroatoms (pyran, pyrone and pyridine) - Heterocycles with two heteroatoms (pyrazole ,imidazole, thiazole, oxazole and isoxazole) .
b: Natural Products (1h/w)
Introductionto natural products: Monoterpens, carotenes-
Steriodes:Sterolse.g.cholesterol,ergosterol,stigmasterol- Alkaloids
II: Practical Part (4h/w):

كود أو رقم المقرر : 402 ك ح
أسم المقرر : كيمياء المناعة والاجسام المضاده وكيمياء الصناعات البيولوجيه
المحتويات :

Theoretical part (3h/w):
Part I: Immunology (2h/w):
General introduction and the immune response, Natural immune response, Acquired immune response, Active and passive immunity, Immune system cells and their cooperatives, Antigen, immunogens and factors affecting the immune response , Paratopes, epitopes,valency of antigens and their crossreactivities, Immunization ,monoclonal and polyclonal antibodies and their characterization , Factors affecting antigens and antibodies interactions, Agglutination and haemagylutination reactions precipitation reaction and characterization of precipitions , radio-immuno assay, immunofluorescent tests and enzyme linked immunoassay, Blood groups and blood transfusions.
Part II: chemistry of biological industries (1h/w):
Production and biochemistry of organic solvents, acids and aminoacids-Production and biochemistry of single cell protein(SCP) y fermentation-Production and biochemistry of enzymes y fermentation- Production and biochemistry of antibiotics.
Part III : Practical (4h/w):
General basics of practical immunology, an introduction to the immune system pats and their distribution around the body , Essential procedure for blood samples' collection, storage, preservation and separation of plasma, serum samples, Antigen-antibody reaction & the factors affecting their interaction (lock and key concept , affinity, avidity, pH , temperature , different chemical bonds, prozone effect …..etc., Types of interaction between antigen and antibody and

their applications - Agglutination ,precipitation, signal amplification reactions- ABO blood group typing & testing of different blood samples -Indirect agglutination: detection of c-reactive protein , rheumatoid factor and antistreptolysin-o in vitro samples by latex reagents-Indirect hemagglutination of schitosomiasis , Indirect hemagglutination assay of toxoplasmosis-An introduction to direct, competitive & indirect ELISA techniques and the main differences in application, Analysis and interpretation of ELISA tests results-Detection and estimation of HBs antigen in positive and negative samples, An overview of CBC & investigation of total white blood cell counting, Measurement of erythrocytes sedimentation rate & revision

كود أو رقم المقرر : 403 ك ح
أسم المقرر : كيمياء الصناعات الدقيقة والسوائل البيولوجية و الخمائر وايض الغذاء العام
المحتويات :

Part 1: Fermentation ,Micro-industries.(1h./w.)
Importance of fermentation - Methods of fermentations- Different types of fermentation processes- Steps of fermentation-Factors affecting fermentation, Petroleum gas oil agricultures and industries waste products as a cabon source in fermintation, advantages and disadvantages.

Part II: Biological fluids (1h/w)
Milk secretion and discharge , Physical and chemical properties of milk, Composition of milk , Milk products, Cellular composition of blood , Blood plasma and serum and their constituents , Buffers of blood and their disturbance of acid base balance, Clotting factors and blood clotting, Urine and its phosiological inorganic constituents, Organic constituents of urine , Abnormal constituents of urine , Semen and its analysis, Intestitial fluids and Cerebrospinal fluids.

Part III: General food metabolism (1h/w)
Biological importance of metabolism, Triglycerides and their metabolism and fatty acids metabolism , LDL-cholesterol metabolism HDL-cholesterol metabolism, Digestion of carbohydrates and their absorption , Defects of carbohydrates digestion and absorption , Glycolysis and special feature of anaerobic glycolysis in RBCs, Controlling of metabolic flux , TCA cycle, uronic acid pathway and pentose phosphate, Fructose & galactose , mannose metabolism, Glycogen synthesis and gluconeogenesis, Amino acids anabolism, Amino acids catabolism, Ammonia and urea formation and urea cycle and Nucleic acids metabolism.

Practical Part (4h/w)

كود أو رقم المقرر : 419ك
أسم المقرر : كيمياء غير عضوية –كيمياء فيزيائية
المحتويات :

Part I: Inorganic chemistry (2h/w):

A- Bonding Theories (1h/w)

Valency bond theory, Crystal field theory, Applications of crystal field theory, Molecular orbital theory

B- F-Block elements (1h/w)

The main characters of lanthanides and actinides, The separation and extractions of lanthanides, The reasons for their position in periodic table and understanding their electronic configurations, The lanthanide contraction and synthesis the lanthanide elements and their binary compounds, The coordination chemistry of lanthanides, The electronic and magnetic properties of lanthanides, The main characters of actinides, Extraction of thorium element , The meaning of enrichment of uranium its isotopes

Part II: Physical chemistry (2h/w):

A- Advanced electrochemistry (1h/w)

Irreversible process, Polarization, Determination of polarization, Tafel equation, Polarography, Application of polarography.

B- Molecular spectroscopy (1h/w)

Principles of spectroscopy, Properties of light, Beer-Lambert' s law, Applications of UV-Visible spectroscopy, IR spectroscopies (Rotation; Vibration and electronic transition, Raman spectra.,

Part III: Practical (4h/w)

كود أو رقم المقرر : 420 ك
أسم المقرر : كيمياء عضوية
المحتويات :

Part I: Spectra of the organic compounds (1h/w):

IR spectroscopy (Theory, Stretching and binding vibrations, Wavelength, Wave number, Hooks low for calculation of bond frequency - Electronic Spectroscopy (Theory, absorption law, Chromphores & auxochromes, Bathochromic, Hypthochromic, Hyper and hypochromic effects, Woodward rules for conjugated dienes, unsaturated ketones and carbonyl carbonyl compounds- ^{1}H-NMR spectroscopy, (Theory, Chemical shift, Spin-spin coupling, Integration of signals, Effect of inductive and mesomeric effects on chemical shift value, anisotropic effect, coupling constants, and complex spectra- ^{13}C-NMR Spectroscopy - Mass spectroscopy (Theory, Molecular and base peaks, The nine fragmentation rules, MS specra of hetero-atom containing compounds- Hydrogen index for organic compounds.

6- Combined problems including IR, UV & Vis, NMR and MS spectroscopy

Part II: Dyes (1h/w)

Dyes (Relationship between color and Chemical constitution) - Classification of dye: Azo dyes- Nitrophenyl dyes- Xanthen dyes- Reactive dyes- Desparse dyes – Diphenylmethane dyes – Triphenylmethane dyes and vat dyes

Part III: Practical (4h/w)

كود أو رقم المقرر : 404 ك ح
أسم المقرر :وظائف حيوية وبيولوجيا الاورام, طرق فصل المواد البيولوجية
المحتويات :

Theoretical Part (4h/w)

Part I: Cancer biology (2h/w)

Structure and organization of human genome ,genetics and human diseases,Cancer and inheritance of cancer , Classification of human cancer, the control of cell division. Causes of cancer, Oncogenes, Chromosomal alterations and cancer formation, inheritance of cancer . Chromosomal alteration in familial cancer ,treatment of cancer .

Part II: Separation techniques of biological materials (2h/w)

Analyzing and reporting experimental data ,Preparation and properties of solution , Chromatographic

Techniques , Adsorption chromatography , Ion-exchange chromatography, Liquid-liquid partition chromatography, Paper chromatography, Thin –layer chromatography , Gel permeation chromatography, Biospecific chromatiography"Affinity Chromatography", Hydrophobic chromatography "Special adsorption of affinity chromatography", Gas –liquid chromatography, High performance liquid " chromatography HPLC and FPLC, Specific applications of chromatography on carbohydrates

Practical Part (4h/w):

Tumor biology(I):

Extraction of DNA from liver and RNA from yeast. Estimation of DNA, RNA contents -Determination of the phosphorous content of DNA and RNA-Estimation of s-nucleotides -Assay of DNase

Separation techniques of biological materials(II)

General introduction , Principles of chromatography , Paper chromatography ,Colunm chromatography ,Thin layer chromatography ,The separation of leaf pigments by adsorption chromatography, The separation of amino acids by paper chromatography and TLC , The , identification of sugars in fruit juices using TLC , The separation of blue dextran on sephadex G-25 , Purification of pepsin on gramicidine-sepharose , SDS-gel electrophoresis , General revision Dissicussion , exam

كود أو رقم المقرر : 405 ك ح

أسم المقرر : التحليل الضوئى و الخلية النباتية والتركيب الكيميائى للافرازات الغدد الصماء والهرمونات

المحتويات :

Theoretical Part (2h/w)

Part I: Photosynthesis and plant cell (1h/w)

Plant cell plastids , chloroplast- Role of solar energy in photosynthesis, photosynthesis equation-Light and dark reaction-Role of reaction center in converting solar energy to bioenergy-Role of chloroplast in absorbing the solar energy-Cooperation of photosystem 1& photosystem 2 in reduction of NAD+ to NADH -Calvin cycle and glucose synthesis-C3 & C4 pathways in fixation of CO2 in the plant.

Part II: Endocrine secretions and hormones (1h/w)

Introduction and organization of the mammalian endocrine systems - Biochemical aspects of hormones-Structure of pituitary hormones-Structure and biosynthesis of thyroid and parathyroid hormones-Structure of insulin and intreeptors (hormone-receptors interaction)-Structures, biosynthesis and catabolism of adrenal cortical hormones-Structures, biosynthesis of adrenal medullery hormones.-Structures and biosynthesis of sex hormones

Practical Part (4h/w):

Introduction to principles of endocrinology-principles of Estimation of T3,T4,TSH, testosterone and estrogenes hormones-Introduction to Photo-analysis, plant cells and environmental biology-Seperation of enzymes from Spanish using sephadex gel- Enzymes assays for product of separated enzymes from some plants- Seperation of chlorophyll from some plants

كود أو رقم المقرر : بدون
أسم المقرر : بحث ومقال
المحتويات :

weekly meet /2 hours / student.
Introduction to an essay or research, Choosing the subject of the essay or research, Main topics of the essay or research, Collecting materials, Revisions of the collected materials, Collection of references of the essay, Writing the essay, Revisions of the written materials, Editing of the materials
weeks - An overall revision for presentation

كود أو رقم المقرر : 402 ل
أسم المقرر : لغة انجليزية
المحتويات :

Meteorology-Physics, chemistry, matter, mass and molecules ,opinion essays , providing solutions to problems essays , assessing good and bad points,gerund and infinitive, noun clauses , conjunctions and prepositions,-linking ideas and structure and cohesion

كود أو رقم المقرر : بدون
أسم المقرر : حاسب
المحتويات :

WORLD WIDE WEB (WWW) - History, Working, Web Browsers and their versions, Its functions, URLs, web sites, Domain names, Portals. Concept of Search Engines, Search engines types, searching the Web and Web Servers, client and server techniques- Internet basics:Internet Protocols , Internet Services –USENET, GOPHER, WAIS, ARCHIE and VERONICA, IRCWORLD WIDE WEB - HTML Basics: - Introduction to HTML elements, Basic tags, Attributes, creating HTML page, formatting, HTML links, List types and its tags. Creating HTML tables, adding pictures. HTML and page accessibility, colors & background-Advance HTML: - Use of Frames and Forms in web pages, formatting web pages by using GIF, JPEG getting web and clip arts. Use of interlinks-Introduction to Dreamweaver-More Features of Dreamweaver-Different applications to build homepages using HTML and Dreamweaver