பருவம்: முதற் பருவம் **பாடக் குறியீட்டு எண்: LT101S**

அலகு **பாடங்கள்**

1. அலகு – 1 **(மரபு கவிதைகள்)**
   - 1.1 வள்ளலார்
   - 1.2 பாரதியார்
   - 1.3 பாரதிதாசன்
   - 1.4 கவிமணி
   - 1.5 கண்ணதாசன்

2. அலகு – 2 **(புதுக்கவிதைகள்)**
   - 2.1 அப்துல் ரகுமான்
   - 2.2 மு. மேத்தா
   - 2.3 வைரமுத்து
   - 2.4 தமிழச்சி
   - 2.5 நாட்டுப்புறப்பாடல்கள்

3. அலகு – 3 **(இலக்கிய வரலாறு)**
   - 3.1 இருபதாம் நூற்றாண்டுக் கவிஞர்கள்
   - 3.2 புதுக்கவிதையின் தோற்றமும், வளர்ச்சியும்
   - 3.3 சிறுகதையின் தோற்றமும், வளர்ச்சியும்
   - 3.4 நாட்டுப்புற இலக்கியங்கள்

4. அலகு- 4 **(சிறுகதைகள்)** கதவு – கி.ரா
   - 4.1 கதவு
   - 4.2 குடும்பத்தில் ஒரு நபர்
   - 4.3 ஜெயில்
   - 4.4 மின்னல்
   - 4.5 எழுத மறந்த கதை

5. அலகு – 5 **(மொழித் திறன்)**
   - 5.1 வல்லொற்று மிகுமிடம்
   - 5.2 வல்லொற்று மிகாமிடம்

SEMESTER – I ENGLISH THROUGH LITERATURE – I LE101S

UNIT - 1 **[15 HRS]**

RELATIONSHIPS

Freedom at Midnight – Larry Collins and Dominique Lapierre (Prose)
Night of the Scorpion – Nissim Ezekiel (Poem)
Driving Miss Daisy – Alfred Ubry (Play)

UNIT-2 **[15 HRS]**

SELF ENHANCEMENT

Ulysses – Alfred Lord Tennyson (Poem)
Our Urgent Need for Self-esteem – Nathaniel Brandon (Prose)
Emotional Intelligence – Daniel Goleman (Prose)

UNIT - 3 **[15 HRS]**

BASIC GRAMMAR

The Sentence

Parts of Speech

Nouns – Classes and Gender

Nouns – Number and Case

Adjectives

Comparison of Adjectives

UNIT- 4

BASIC LANGUAGE SKILLS **[15 HRS]**

Dialogue Writing
Letter writing – [Formal, Informal]
Comprehension

Text

1. Elango, K. **Insights : A Course in English Literature and Language**. Hyderabad: Orient Black swan Private Limited, 2009.
2. Bhatnagar, R.P., and Bhargava, Rajul. **English for Competitive Examinations**. Chennai: Macmillan India Press, 2002.
3. David Green, **Contemporary English Grammar: Structures and Composition**. Chennai: Macmillan India Limited, 2004.

Reference

1. Prince, Donna. **Skills for Success**, New York: CUP 1998.
2. Wallace, Michael, J. **Study Skills in English**. Kottayam: CUP, 2004.

SEMESTER-I BIOMOLECULES BC101

UNIT I CARBOHYDRATES [30 hrs]

Introduction and definition of carbohydrates, classification – monosaccharides, oligosaccharides, polysaccharides, occurrence, structure and functions of monosaccharides (glucose and fructose).General properties with reference to glucose stereoisomerism, optical isomerism, anomers, epimers, mutarotation .Ring and straight chain structure of glucose (haworth projection formula).Reactions of monosaccharides (oxidation, reduction, osazone reaction), Kiliani synthesis, invert sugar

Structure, occurrence and biological importance of disaccharides (sucrose, lactose, maltose).Structure, occurrence and biological importance of polysaccharides – Storage polysaccharides (starch, glycogen, inulin), Structural polysaccharides (cellulose, chitin, pectin), Heteropolyasaccharides (hyaluronic acid, heparin)

UNIT II LIPIDS [20 hrs]

Introduction,definition,Nomenclature and classification of lipids, Physical properties {emulsification},classification of fatty acids –saturated, unsaturated and essential fatty acids, properties of fatty acids{Iodine number, acid number,RM number,saponification and Rancidity) Structure and function of commonly occurring phospholipids {esp.Lecithin, cephalin,phosphatidyl Inositol and serine} Sphingomyelin, plasmalogen,sterols{cholesterol} and bile acids.

UNIT III AMINOACIDS & PROTEINS [25 hrs]

Definition and classification of Amino acids based on structure, metabolism &Polarity .Essential & Non essential amino acids, Non protein amino acids. Characteristics of amino acids-optical isomerism, zwitter ion, acid base properties of amino acids, Isoelectric point & Isoelectric pH.

Definition ,classification based on size and shape, solubility, composition & functions. General reactions of proteins (Reactions of both NH2 group & COOH group).Structure of proteins-primary, secondary, tertiary & Quaternary. Determination of amino acids sequence. N terminal determination-Edman's dansylchloride method.

C- terminal-Hydrozinolysis and biochemical method. Chemical synthesis of polypeptide chain and solid phase polypeptide synthesis.

UNIT IV NUCLEIC ACIDS [15 hrs]

Nucleic acids – Bases ,Nucleosides and Nucleotides, Phosphodiester linkage, Nucleic acid types – DNA and RNA, Structure –double helical structure of DNA, Properties of DNA – denaturation, Tm and hyperchromicity, Structure of RNA- t-RNA, m-RNA and r-RNA.

UNIT V HETEROCYLIC COMPOUNDS [10 hrs]

Heterocylic rings of biologic importance, thiazole, indole, pyridine, pteridine, pyrrole,imidazole with the example.

TEXT BOOKS

1. Renuka Harikrishnan.1995. Biomolecules and Enzymes. (2nd ed.) Madurai: Indraj Pathipagam.
2. J.L.Jain, Sanjay Jain and Nitin Jain.1997. Fundamentals of Biochemistry. (6th ed.) New Delhi: S.Chand& company Ltd.

REFERENCE BOOKS

1. Power & Chatwal. *Biochemistry*. (4th ed.) Himalaya Publishing House.
2. Cambell and Farrell. 2007. *Biochemistry*. (5th ed.) Delhi: Baba Borkhanath printers.
3. T.N.Pattabiraman.1993. *Principles of Biochemistry*. (5th ed.) Bangalore: Gajanana book Publishers and Distributors
4. Dr.A.C.Deb. 1983. *Fundamentals of Biochemistry*. (8th ed.) Kolkata: New Central Book Agency.
5. Lehninger,Nelson And Fox. 1982. *Principles Of Biochemistry*. (4th ed.) UK: Macmillan Worth Publishers.

SEMESTER-I CELL BIOLOGY BC102

UNIT I MEMBRANE PROTEINS AND TRANSPORT [15 hrs]

Introduction – Prokaryotic and eukaryotic cell. Cell membrane – structure and functions of Fluid Mosaic Model. Membrane proteins: Carbohydrate, lipids and their function on FMM. Membrane transport – Types of transport, passive and active transport, sodium potassium pump, $Ca^{2+}$and ATP_{ase} pumps, symport and antiport, endocytosis and exocytosis, liposomes.

UNIT II ORGANELLAR FUNCTION –I [10 hrs]

Mitochondria : morphology and function., Golgi complex : structure & function. Microbodies – structure, morphology and function, peroxisomes and glyoxysomes

UNIT III ORGANELLAR FUNCTION –II [10 hrs]

Endoplasmic reticulum – occurrence, morphology and function. Enzymes of the ER membrane. Lysosomes – structure and chemical composition. Ribosomes – structure and functions.

UNIT IV CELL CYCLE [15 hrs]

Nucleus – structure composition and biochemical function, chromosome structure – structure and organisation of chromatin, polytene and lambrush chromosome with example. Cell cycles – Phases of cell cycle, mitotic and meiotic cell cycle

UNIT-V CYTOSKELETON [10 hrs]

Cytoskeleton – structure and biochemical function – Microtubules, Microfilaments: Distribution, chemical composition and function, brief outline of types of IF proteins.

TEXTBOOKS:

1. Verma . P.S and Agarwal .P.K,1999, "Cell biology, Genetics, Molecular biology, Evolution and Ecology",(24th edition) New Delhi, S.Chand & Company Ltd
2. Dr. M. Swaminathan,1987, "Food and Nutrition Vol I&II", Second edition,Bangalore, Bappco Publishers.

REFERENCES:

1. Sheela A. Stanly ,2008,"Cell biology for biotechnologist", (I Edition), Narosa Publishing House Pvt-Ltd
2. Prakash S.Lohar, 2007, "Cell and Molecular biology" (I edition),Chennai, MJP publishers
3. De Robertis EDP and De Robertis EMF,1987, "Cell and Molecular Biology", (8th edition), New Delhi, B.I.Waverly Pvt Ltd
4. Patricia Trueman,2007, "Nutritional biochemistry" (I edition), Chennai, MJ publishers
5. Darnell J, Lodish H, Baltimore D,1986, "Molecular cell biology", England, WH Freeman

SEMESTER – I ALLIED CHEMISTRY – I ACH101T

Objectives:

1. To introduce basic concepts of co-ordination chemistry & chemical bonding.
2. To know about the mechanism of aromatic electrophilic substitution.
3. To study the important concepts of electro chemistry & thermodynamics
4. To learn the various quantitative measurements.
5. To understand the pharmaceutical & petrochemical reactions

UNIT I ORGANIC CHEMISTRY

1.1 Chemical bonding –Types of Bonding-Bonding in Carbohydrates and Proteins-Structure of Amino acids-Zwitter ion-Isoelectric Point – Structure of Proteins.

1.2 Stereoisomerism - Types, causes of optical activity of Lactic Acid & Tartaric acid – Racemisation - Resolution, Geometrical isomerism – Maleic acid &Fumaric acid.

1.3 Oxidation-Reduction reactions- selectivity in Oxidation and Reduction reactions.

UNIT II INORGANIC CHEMISTRY

2.1 Co-Ordination Chemistry: Definition of terms used-classification of ligands-Werner's theory

2.2 Biochemistryof iron--Heme proteins-Nature of Heme-Dioxygen Binding-Iron storage and Transport- Structure and function of haemoglobin, myoglobin.

2.3 BioChemistry of other metals- Zn-CarboxypeptidaseA, Carbonic anhydrase - Mg-chlorophyll.Co-VitaminB_{12}

UNIT III PHYSICAL CHEMISTRY

3.1 Thermochemistry-Units of Energy changes-Exothermic and Endothermic reactions-Heat of reaction- Different types of heat of reaction

3.2 IonicEquilibria-pH scale-Buffer solution-Types of Buffer Solution-Calculation of pH values of Buffer mixtures-Henderson equation

3.3 Acid-Basecatalysis-Bronsted relation-Enzyme catalysis-MichaleisMenton equation-Influence of pH and temperature

UNIT IV PHARMACEUTICALCHEMISTRY

4.1 Developement of NewDrugs-Drug and Disease-Structure and activity-Additives and their role-Human Gene therapy- Animal and Synthetic Biotechnology

4.2 Mode of action and uses of sulpha drugs - Prontosil, sulphadiazine and sulphafurazole. Definition and one example of analgesics, antipyretics, transquilizers, sedatives, local and general anaesthetics.

UNIT V APPLIED CHEMISTRY

5.1 Macromolecules-Classification of Polymers-Chemistry of polymerization-Addition

5.2 Polymerisation-Condensation Polymerisation-Coordination Polymerisation-Dendrimers-Biopolymers

5.3 Bio fuels-First generation of Bio fuels-Second generation of Bio fuels-Sustainable Bio Fuels-Calorific value of food and fat.

Text Books

1. J. D. Lee, Concise Inorganic Chemistry, 5th edition, Blackwell science, London 1996.
2. P. S. Kalsi. Organic Reaction stereochemistry & Mechanism. 4th edition . New Age International publishers. 2006.
3. Puri and Sharma. Principles of physical chemistry. 40th edition.2003
4. I. L. Finar, Organic chemistry, 6th edition, ELBS, 1990
5. G.R.Chatwal,Pharmaceutical Chemistry Organic (vol II), Himalaya Publishing House, Second Revised Edition 1997
6. Polymer Science, V. R. Gowariker, N. V. Viswanathan and J. Sreedhar, Wiley Eastern
7. J.Rajaram and J.C.Kuriacose,Thermodynamics For Students of Chemistry,Lal Nagin Chand,New Delhi, 3rd edition, 1986.

Reference Books:

1. F. A. Cotton, G. Wilkinson, C. Murillo and M. Bochman, Advanced Inorganic Chemistry, 6th edition., John wiley, New York 1999.
2. Text book of Polymer Science, F.W. Billmeyer Jr, Wiley
3. J.E. Huheey, Inorganic Chemistry, 5th Edn., Harper International.1993.

Raj.K. Bansal,Organic Reaction Mechanism, 3rd edition, Tata McGraw Hill, 1998

SEMESTER – I ALLIED CHEMISTRY PRACTICAL – I ACHP101

QUALITATIVE ANALYSIS OF AN ORGANIC COMPOUND

- Systematic Analysis of an Organic Compound Containing one functional Group and Characterisation by Confirmatory Tests

- Reactions of Aldehyde (Aliphatic & Aromatic), Carbohydrate, (Reducing & Non-Reducing sugar), Carboxylic Acid (Mono & Di), Phenol (Mono & Dihydric), Primary amine, Amide (Mono & Di).

Reference Books :

1) A.O. Thomas, Practical chemistry- Scientific Book Center.
2) Vogel, Text book of chemical analysis, Longman.
3) S. Sundaram, & S. Viswanathan, Practical chemistry, 3 Volumes.
4) Vogel, Text book of Practical Organic chemistry, Longman

SEMESTER – I VALUE EDUCATION VE101

Unit I

Values-Definition- Concept -Sources of values-Characteristics of values-Classification of values-Importance of value education-Erosion of values-Political erosion-social erosion-economic erosion.

Unit II

Personal values-Importance- Self concept-Meaning-the existential self- the categorical self- self - image- Ideal self- Attitude-Meaning-Formations-Factors determining attitude-Need for positive attitude-Developing positive attitude-Consequences of negative attitude.

Unit III

Adjustment problems- Emotional and sexual adjustments-Significance of youth period- Autonomy versus dependence -Feeling of inferiority- Marriage and family-Identity of roles- Vocational problems - Social discrimination- stress coping skills.

Unit IV

Social values-Meaning-Importance-Types-Social sensitiveness-Altruism-Toleration-Social adjustment- Social loyalty-Social justice-Panchsheel of values-Other social values-Family values- Value of team work-Functions of family-Moral values-Importance of moral values.

Unit V

Cultural values-Meaning-Importance -Religious values-Characteristics of religious values- significance of religious education- Secular values-mutual understanding – Mutual cooperation- Tolerance- Appreciation of universal truths- Character-Humanitarianism.

Text Books;

1. RATCHAGAR .I (2010) mental health of rural youth.vijay Nicole imprints private limited, Chennai.
2. RATCHAGAR .I (2012) Value education, personality enrichment& soft skills. Vijay Nicole imprints private limited, Chennai.

References;

1. Beliefs Attitudes and Values by Milton Rokeach (1968)
2. The Nature of Human Values by Milton Rokeach (Aug 1973)
3. Understanding Human Values by Milton Rokeach (Jul 1, 2000)
4. The Three Christs of Ypsilanti (New York Review Books Classics) by Milton Rokeach and Rick Moody (Apr 19, 2011)
5. Understanding Human Values by Milton Rokeach (Jul 1, 2001)
6. Health And Human Values by Frank Harron, (1983)

பருவம்: இரண்டாம் பருவம் **பாடக் குறியீட்டு எண்: LT202S**

அலகு **பாடங்கள்**

அலகு – 1

1.1 திருமூலர்
1.2 சம்பந்தர்
1.3 திருநாவுக்கரசர்
1.4 மாணிக்கவாசகர்
1.5 ஆண்டாள்

அலகு – 2

2.1 பட்டினத்தார்
2.2 மஸ்தான் சாகிபு
2.3 குமரகுருபரர்
2.4 கலிங்கத்துப் பரணி
2.5 நந்திக்கலம்பகம்
2.6 முக்கூடற்பள்ளு

அலகு – 3 **(உரைநடை)**

நம்மால் முடியும் தம்பி நம்பு
எம்.எஸ்.உதயமூர்த்தி

அலகு- **4 (இலக்கிய வரலாறு)**

4.1 சைவ சமயக் குரவர்
4.2 ஆழ்வார்கள் (ஆண்டாள், குலசேகர ஆழ்வார் மட்டும்)
4.3 சிற்றிலக்கியங்கள் (பரணி, பள்ளு, பிள்ளைத் தமிழ், கலம்பகம் மட்டும்)
4.4 இசுலாமும் தமிழும்
4.5 உரைநடை வளர்ச்சி

அலகு – 5 **(மொழித் திறன்)**

5.3 கலைச் சொல் ஆக்கம்
5.3.1 அறிவியல்
5.3.2 ஆட்சித்துறை
5.3.3 கணினி
5.3.4 புழங்கு பொருட்கள்
5.4 மொழிபெயர்ப்புப் பகுதி
5.4.1 கடிதங்கள

SEMESTER – II ENGLISH THROUGH LITERATURE – II LE202S

UNIT -1 **[15 HRS]**

PROSE : Contemporary Issues

The First Atom Bomb – Marcel Junod

Climatic Change and Human Strategy – E. K. Fedcrov

Corruption : Causes, Consequences and Agenda for Further Research – Paolo Mauro

UNIT- 2

LIFE STORIES **[15 HRS]**

The Diary of a young girl – Anne Frank

Wings of Fire – A.P.J. Abdul Kalam

Mother Teresa – F. G. Herod

UNIT - 3 **[15 HRS]**

BASIC GRAMMAR

Articles

Pronouns – Personal, Reflexive and Emphatic

Pronouns – Demonstrative, Indefinite, Interrogative, Distributive and Reciprocal.

Pronouns – Relative

Verbs – Transitive and Intransitive, Active and Passive Voice

Verbs – Mood and Tense

UNIT - 4.

WRITTEN COMMUNICATION SKILLS **[15 HRS]**

Precis Writing

Note Making

Report Writing

Text

1. Elango, K. Insights : **A Course in English Literature and Language**. Hyderabad: Orient Black Swan Private Limited, 2009.
2. Bhatnagar, R.P., and Rajul Bharagava. **English for Competitive Examinations**. Chennai: Macmillan India Press, 2002.
3. David Green, **Contemporary English Grammar: Structures and Composition**. Chennai: Macmillan India Limited, 2004.

Reference

1. Prince, Donna. **Skills for Success**, New York: CUP 1998.
2. Wallace, Michael, J. **Study Skills in English**. Kottayam: CUP, 2004.

SEMESTER-II BIOMOLECULES-II BC203S

OBJECTIVE :
To understand the structure and functions of complex biomolecules.

UNIT I LIPIDS [15 hrs]
Introduction , definition, Nomenclature and classification of lipids, Physical properties {emulsification},classification of fatty acids –saturated, unsaturated and essential fatty acids, properties of fatty acids{Iodine number, Acid number, RM number, Saponification number and Rancidity}. Structure and function of commonly occurring phospholipids (esp .Lecithin , cephalin , phosphatidyl inositol and serine}Sphingomyelin, plasmalogen, sterols{cholesterol} and bile acids. Glycolipids-cerebrosides and gangliosides.

UNIT II AMINOACIDS [10 hrs]
Definition and classification of Amino acids based on structure, metabolism & Polarity .Essential & Non essential amino acids, Non protein amino acids. Characteristics of amino acids-optical isomerism, zwitter ion, acid base properties of amino acids, isoelectric point & isoelectric pH.Titration curve of aminoacids.

UNIT III PROTEIN-I [10 hrs]
Definition, classification based on size and shape, solubility, composition & functions. General reactions of proteins (Reactions of both NH_2 group & COOH group)

UNIT IV PROTEIN-II [15 hrs]
Structure of proteins-primary, secondary, tertiary & quaternary. Ramachandran plot and forces stabilizing the structure of proteins, Determination of amino acid sequence, N -terminal determination- Edman's dansylchloride method. C- terminal-hydrazinolysis and biochemical method, solid phase polypeptide synthesis.

UNIT V BIOLOGICALLY IMPORTANT PEPTIDES & PROTEINS [10 hrs]
Structure and functions of biologically important peptides-Glutathione, vasopressin & Insulin. Biologically important proteins-structure and functions of Globular proteins (Haemoglobin, Myoglobin), Fibrous protein (Keratins, collagen) and Lipoproteins.

TEXTBOOKS:

1. Renuka Harikrishnan ,1995, " Biomolecules and Enzymes" (second edition), madurai, Indraja Pathipagam
2. J.L.Jain, Sanjay Jain and Nitin Jain,1997, "Fundamentals of Biochemistry"(6th Edition) ,New Delhi, S.Chand & Company Ltd

REFERENCES:

1. Power & Chatwal "Biochemistry" 4th edition , Himalaya Publishing House
2. Cambell &Farrell, 2007, "Biochemistry" 5th edition, Delhi ,Baba Borkhanath printers
3. T.N.Pattabiraman,1993"Principles of Biochemistry" 5th edition,Bangalore,. Gajanana Book Publishers and Distributors
4. Dr.A.C.Deb ,1983,"Fundamentals of Biochemistry" (8th edition), Kolkata,New Central Book Agency
5. Lehninger,Nelson And Cox ,1982, " Principles Of Biochemistry", (4TH Ed)UK, Macmillan Worth Publishers.

SEMESTER-II NUTRITIONAL BIOCHEMISTRY BC204S

OBJECTIVE

To study the nutritional aspects of various food stuffs and the disorders associated with it

UNIT I NUTRITIVE AND CALORIFIC VALUE OF FOOD [15 hrs]

Introduction and definition of food and nutrition, Basic food groups – Energy yielding, body building and protective foods. Basic concepts of energy expenditure, Unit of energy, measurement of food stuffs by bomb calorimeter , calorific value of proteins, carbohydrates and lipids, RQ of foods, Basic metabolic rate (BMR),its measurements and influencing factors, SDA of foods.

UNIT II NUTRITIVE VALUE OF PROTEINS & PROTEIN MALNUTRITION [15 hrs]

Essential amino acids, biological value of proteins (animal and plant proteins), evaluation of proteins by nitrogen balance method – DC, BV, NPU and NAP of animal and plant proteins, proteins sparing action of carbohydrates, single cell proteins (SCPs) (e.g.,spirulina only). Kwashiorkor and Marasmus- their preventive and curative measures.

UNIT III VITAMINS [10 hrs]

Vitamins – RDA, sources, deficiency and functions of fat soluble vitamins and water soluble vitamins (A,D,E,K,B – complex – B_1, B_2, B_5, B_6, B_9, B_{12} and vitamin – C.)

UNIT IV MINERALS [10 hrs]

Minerals – physiological role and nutritional significance of principal and essential trace elements (sodium, potassium, calcium. magnesium, phosphorous, copper, zinc, iron, iodine, fluorine,selenium,Molybdenum) .

UNIT V BALANCED DIET FOR DIFFERENT AGE GROUPS [10 hrs]

Composition of balanced diet and RDA. Nutritional requirements for infants, children, adolescents and adult (male and female), pregnant and lactating women and old age.

TEXTBOOKS:

1. Verma . P.S and Agarwal .P.K,1999, "Cell biology, Genetics, Molecular biology, Evolution and Ecology",(24th edition) New Delhi, S.Chand & Company Ltd
2. Dr. M. Swaminathan,1987, "Food and Nutrition Vol I&II", Second edition,Bangalore, Bappco Publishers

REFERENCES:

1. Sheela A. Stanly ,2008,"Cell biology for biotechnologist", (I Edition), Narosa Publishing House Pvt Ltd.
2. Prakash S.Lohar, 2007, "Cell and Molecular biology" (I edition), Chennai, MJP publishers
3. De Robertis EDP and De Robertis EMF, 1987, "Cell and Molecular Biology", (8th edition),New Delhi, B.I.Waverly Pvt Ltd
4. Patricia Trueman, 2007, "Nutritional Biochemistry" (I edition), Chennai, MJ publishers
5. Darnell J, Lodish H, Baltimore D, 1986, "Molecular Cell Biology", England, WH Freeman publishers.

SEMESTER – II ANALYTICAL CHEMISTRY ACH202T

UNIT I PURIFICATION TECHNIQUES

Purification of solid compounds- Crystallisation- Fractional crystallization- Sublimation- Purification of liquids- Experimental techniques of distillation- Fractional distillation- Vacuum distillation- Steam distillation

UNIT II SEPARATION TECHNIQUES

Chromatography-Types-Column chromatography-TLC-Ion Exchange Chromatography

UNIT III INSTRUMENTAL ANALYSIS

Polarography-Principle-Instrumentationb-Appilication of Polarography
Cyclic voltammetry-Principle-Instrumentation-Application of CV
Polarimetry-Principle-Instrumentationb-Application –Estimation of Glucose

UNIT IV SPECTROSCOPY

General features of spectroscopy-units
Rotational spectroscopy-the rotational energy levels of molecules-rotational transitions
Vibrational spectroscopy – the vibrations of molecules –transitions-
UV-Visible Spectroscopy-Absorption Laws-Selection Rules-Types of Electronic transitions – chromophore-Auxochrome-Absortion bands and Intensity.Woodwardfieser rules for calculating λ_{max} in Dienes and α,β-unsaturated carbonyl compounds.

UNIT V TECHNOLOGY OF WATER

Water quality parameters-Temporary and Permanent hardness-Estimation of hardness (EDTA method) - Water softening (Zeolite) - Demineralization (Ion Exchange) and desalination (RO)

Text Books:

1. R. Gopalan, P.S. Subramanian & K. Rangarajan, Elements of analytical chemistry, Sultan Chand & Sons, 2003.
2. G.R. Chatwal & S.K. Anand, Instrumental Methods of Chemical Analysis, Sultan Chand & Sons, 1998
3. C. N. Banwell. 1966, Fundamentals of Molecular Spectroscopy, McGraw Hill.
4. S. S. Dara, " A Text Book of Engineering Chemistry" fifth revised edition (1996) S Chand company limited, New Delhi.

Reference Books

1. A. Skoog and D. M. West, "Fundamentals of Analytical Chemistry", International edition, seventh edition (1996), Saunders college publishing Philadelphia, Halt, London.
2. Y.R.Sharma Elementary Organic Spectroscopy Principles and Chemical Appilications S.Chand&Company Ltd; New Delhi4th Revised Edition(2007)

பருவம் : இரண்டாம் பருவம் பாடக் குறியீட்டு எண் : **EBT 201**

அலகு – 1

எளிய முறையில் தமிழ் கற்றல்.

1. பட்டம் – சட்டம் – கட்டடம் – தட்டு – வட்டம் – மாமா
2. பாடம் – சட்டி – கட்டி – தட்டி – வடம் – மாமி
3. பட்டி – சடை – கடை – தடை – வடை – மாதா
4. படி – சாதம் - கார் - தார் - வான் - மாதம்
5. படை – சாவி – காவி – தாள் - வான் - அம்மா – அப்பா
6. பாப்பா –
7. பாட்டி –
8. பாட்டு –

சிறு தொடர்.

பாப்பா படி – பாட்டி கடை – கட்டடம் கட்டித்தா –
பாப்பா பாடம்படி – பாட்டி தட்டு –
பாப்பா பாட்டு படி – பாட்டி வடைத்தட்டு

பயிற்சி.

குடும்பத்தினர் (அ) நண்பருடன் பேச்சுத் தமிழில் உரையாடல்
குறில் நெடில் வேறுபாட்டால் பொருள் மாறுபடும் சொற்கள்
பரம் – பாரம் கரம் – காரம் வரம் – வாரம் சரம் – சாரம்
தரம் – தாரம்

அலகு – 2

உயிரெழுத்துக்கள், ஆய்த எழுத்து, மெய்யெழுத்துக்கள் - வகை, எண்ணிக்கையுடன் அறிதல்.

உயிர்மெய் எழுத்துகள் உருவாதலைக் கற்றல்:
(வல்லின மெய்கள்)
க் + அ – க ..... ற் + ஔ – றௌ
K + A – KA ..... RR + OU - RROU

அலகு – 3

உயிர்மெய் எழுத்துகள் மெல்லினம், இடையினம்
ங் + அ = ங ..... ன் + ஔ – னௌ
NG + A – NGA ..... N + OU – NOU

ய் + அ = ய ..... ள் + ஔ – ளௌ
Y + A – YA ..... LL + OU - LLOU

ஒலி வேறுபாட்டால் பொருள் மாற்றம் (ர-ற, ன-ண, ல-ள, ழ)
அரம் - அறம்
உன் - உண்
வால் - வாள் - வாழ்

ஒவ்வொன்றிற்கும் ஐந்து எடுத்துக்காட்டு தருக.

அலகு – 4

சொல்-வகை

ஓரெழுத்து ஒருமொழி

பெயர்:

ஆ, பூ, தீ, தை, கா (சோலை)

வினை:

வா, போ, ஈ (கொடு)

தா, கா (காத்தால்)

ஈரெழுத்து ஒருமொழி:

பெயர்:

கனி, பனி, வான், காடு, வீடு

வினை:

நில், படி, பார், காண், எழு

தொடர்மொழி: பெயர்:

கபிலர், வெள்ளிவீதியார், திருவள்ளுவர், ஆண்டாள், கம்பர், பாரதியார்

முக்கனி, முத்தமிழ், மூவேந்தர், நாற்றிசை, ஐம்பொறி - இவற்றிற்கு விளக்கம் தருக.

முறைப்பெயர் (உறவுப்பெயர்) அம்மா, அப்பா, மாமா, ...

அலகு – 5

உடலுறுப்புப் பெயர்கள்:

தலை முதல் அடி வரை உள்ள உறுப்புகள்

முதலெழுத்து மாற்றத்தால் பொருள் மாற்றம் பெறும் உடலுறுப்புகள் சான்றாக:

உதயம் – இதயம்	ஊக்கு – மூக்கு
பண், மண் – கண்	படி – அடி
மரம், வரம் – கால்	கல் – பல்
ஆல், பால் – கால்	கொடை – தொடை
அலை, இலை – தலை	மாது – காது
பாக்கு, வாக்கு – நாக்கு	கிழி – விழி

எழுத்து – கழுத்து

பறவைப் பெயர்கள்:

மயில், அன்னம், கிளி, புறா, குயில்

வீட்டு விலங்குகள்:

பசு, ஆடு, குதிரை, நாய், பூனை

மலர்கள்:

தாமரை, மல்லிகை, முல்லை, செண்பகம், அல்லி

நிறங்கள்:

வானவில்லின் வண்ணங்கள் - அறிதல்

எண்கள்:

ஒன்று முதல் ஐம்பது வரை எழுத்தால் எழுதுதல்

சிறுகதை:

“புலியை ஏமாற்றிய நரி” தமிழ் - நான்காம் வகுப்பு, தமிழ் நாட்டுப் பாடநூல் கழகம், சென்னை.

SEMESTER – II PERSONALITY DEVELOPMENT EPD201

Unit I
Personality
Meaning-definition-major determinants of personality genetic determinants, social determinants, cultural determinants, psychological determinants, theories Jung's typology trait theory psychoanalytical theory importance of personality development guidance to improve personality.

Unit II
Mental health
Meaning-concept-definition-characteristics - influential factors - biological factors - psychological factors - socio-economic and cultural factors

Unit III
Stress and its management
Meaning,definition causes of stress, major life changes and environmental events - conquence of stress,stress manangement techniques.

Unit IV
Part-a
Anger and its manangement;
Meaning, definition, nature-causes-symtoms and consequence of anger - physiological effects and psychological effects ,techniques to control anger.
Part-b
Suicidal prevention

Unit V
Soft skills development - Presentation skill - Interpersonal skill - Body language

Text Book;
Mental health of rural youth

Reference;
Personality development-Elizabeth .B.Hurlock

BCP 201 - MAIN PRACTICAL SYLLABUS-1
(I & II SEMESTER)

VOLUMETRIC ANALYSIS

1. Estimation of Glycine by formal titration method
2. Estimation of ascorbic acid using dichlorophenol indophenol dye as link solution
3. Determination of Saponification value of an edible oil
4. Determination of acid number of an edible oil
5. Determination of iodine value of an edible oil
6. Estimation of chloride by Mohr's method and Volhard's method
7. Estimation of reducing sugar from biological fluids by benedict's method
8. Titration curve of amino acids

NUCLEIC ACID EXTRACTION

1. Isolation of genomic DNA (saline citrate method)
2. Isolation of RNA (Phenol extraction method)

QUALITATIVE ANALYSIS

a) Qualitative analysis of carbohydrates
Glucose, fructose, arabinose, maltose, lactose,galactose,dextrin,mannose,sucrose and starch
b) Qualitative analysis of aminoacids
Tyrosine,. tryptophan, arginine, histidine,Proline and cysteine
c) Reactions of lipids – solubility, saponification , tests for unsaturation, Libermann Burchard test for cholesterol

SEMESTER – II ALLIED CHEMISTRY PRACTICAL – II ACHP202

1) Chromatography- TLC Analysis of Oils.
2) Colorimetry- Estimation of Iron.
3) Titrimetry- Estimation of Iron with $KMnO_4$ and $K_2Cr_2O_7$.
4) Analysis of water- Determination of hardness of water by complexometric titration.

Reference Books :

1) B.K. Sharma, Industrial chemistry, GOEL Publishers, 2004.
2) R. Morris, Shreve, J.A. Brink, Chemical Process Industry, Prentice Hill, 2000.
3) S. Sundaram, S. Viswanathan, Practical chemistry, 3 Volumes
4) Vogel, Quantitative Analysis, Longman.

Evaluation pattern

Industrial chemistry practicals
External = 60 marks
Record – 10
Viva voce – 10
Volumetric – 40
Toal -60 mark

பருவம்: மூன்றாம் பருவம் **பாடக் குறியீட்டு எண்: LT303S**

அலகு **பாடங்கள்**

அலகு -1

1.1 சிலப்பதிகாரம் - வழக்குரை காதை
1.2 மணிமேகலை – பாத்திரம் பெற்ற காதை

அலகு – 2

2.1 சீவகசிந்தாமணி – கேமசரியார் இலம்பகம்
2.2 கம்பராமாயணம் - மந்தரை சூழ்ச்சிப் படலம்

அலகு – 3

3.1 பெரியபுராணம் - பூசலார் நாயனார் புராணம்
3.2 தேம்பாவணி – வளன் சனித்த படலம்
3.3 சீறாப்புராணம் - மானுக்குப் பிணை நின்ற படலம்

அலகு- 4 **(இலக்கிய வரலாறு)**

4.1 ஐம்பெருங்காப்பியங்கள்
4.2 கிறிஸ்துவக் காப்பியங்கள்
4.3 இசுலாமியக் காப்பியங்கள்
4.4 சோழர்காலக் காப்பியங்கள்
4.5 இரட்டைக் காப்பியங்கள்

அலகு – 5

5.1 பண்பலை வானொலி நிகழ்ச்சித் தொகுப்பு
5.2 வாடிக்கையாளர் சேவை மைய அலுவலர்
5.3 சுற்றுலா வழிகாட்டி
5.4 கடிதங்கள்
5.5 பொதுக்கட்டுரை

SEMESTER – III ENGLISH THROUGH LITERATURE –III LE303S

OBJECTIVES:

1. To enable the students learn the art of communication through reading literature.
2. To enable them appreciate literary works.
3. To make them learn the relationship between Language & Literature.

UNIT- I SPORTS

1. Swami and Friends – R.K. Narayan (Prose)
2. See Off the Shine – Imogen Grosberg (Poem)
3. The Sporting Spirit – George Orwell (Prose)

UNIT–II MASS MEDIA

1. Building an Internet Culture – Philip Agre (Prose)
2. Odds against Us – Satyajit Ray (Prose)
3. TV as Babysitter – Jerzy Kosinski (Prose)

UNIT – III BASIC GRAMMAR

1. Agreement of the Verb with the subject
2. Non – Finite Verbs
3. Strong and Weak verbs
4. The Auxiliaries
5. Anomalous Finites

UNIT – IV BASIC LANGUAGE SKILLS

1. Paragraph Writing
2. Phonetic symbols, transcription (words)
3. Idioms & Phrases:
   i. List of Idioms: An absent minded person, apple- pie order, an armchair critic, a big shot, a burning question, a cock and bull story, crocodile tears, a flying visit, laughing stock, asquare deal, a tall order, birds of a feather, fish out of water, the lion's share, storm in a tea cup.

ii. List of Phrases: Bear with, call on, call off, carry out, find out, give up, hand over, keep on, keep up, look after, set out, take over, turn down, wind up, work out.

Text

1. Elango, K. **Insights**: ***A Course in English Literature and Language.*** Hyderabad: Orient Black Swan Private Ltd, 2009.
2. Bhatnagar, R.P., and Bargava, Rajul. ***English for Competitive Examinations***. Chennai: Macmillan, 2002.
3. David Green, ***Contemporary English Grammar Structures and Composition***. Chennai: Macmillan, 2010.

Reference

1. Murphy, Raymond, ***Essential English Grammar***. New Delhi: Cambridge UP, 2009.
2. Jones; Daniel, ***English Pronunciation Dictionary.*** Singapore: Cambridge UP, 2009.

SEMESTER-III INTERMEDIARY METABOLISM- I BC303

UNIT I ENZYMES [15 hrs]

Introduction about Enzymes-Classification- chemical nature and general characterization-active site, mechanism of enzyme action – Lock and key theory and induced fit theory, coenzymes, cofactors, isoenzymes ,factors affecting enzyme activity, units of enzyme activity.

UNIT II ENZYME KINETICS [10 hrs]

Michaelis- Menten equation -determination of Km and Vmax value- Line weaver Burk plot- Enzyme inhibition – competitive, non-competitive and uncompetitive inhibition (no derivation)

UNIT III CARBOHYDRATE METABOLISM – I [15 hrs]

Glycolysis – aerobic and anaerobic, energetics , pyruvate dehydrogenase complex, oxidation of pyruvate – citric acid cycle (energetics included) – glycogenesis and glycogenolysis (key enzymes and regulation of these metabolic pathways are included).

UNIT IV CARBOHYDRATE METABOLISM – II [10 hrs]

Pentose phosphate pathway - gluconeogenesis – glyoxalate cycle.Shuttle Systems- Malate-oxaloacetate-aspartate shuttle and glycerophosphate-dihydroxyacetone phosphate shuttle

UNIT V ELECTRON TRANSPORT CHAIN [10 hrs]

The Electron transport chain - components and reactions of ETC- oxidative phosphorylation – chemiosmotic theory, P/O ratio, uncouplers of oxidative phosphorylation.

TEXT BOOKS :

1. M.N Chatterjea and Rana Shinde," Text book of Medical biochemistry",4th edition, Jaypee Publishers, New Delhi
2. J.L.Jain, Sanjay Jain and Nitin Jain,1997, "Fundamentals of Biochemistry",6th Edition, S.Chand& Company Ltd ,New Delhi.

REFERENCES:

1. Lehninger . David L.Nelson, Michael M.Cox, 1982, "Principles Of Biochemistry", (4th ed)UK, Macmillan Worth Publishers.
2. Robert K. Murray, Daryl K. Grammer "Harper's Biochemistry",(25th Edition) McGraw Hill, Lange Medical Books.
3. Sathya Narayanan U,1999, "Biochemistry", (2nd Edition),Kolkata, Allied Publishers.
4. Donald Voet and Judith Voet,"Biochemistry",2nd edition,John Wiley & Sons,Inc,NY

SEMESTER-III ANALYTICAL BIOCHEMISTRY- I BC304

UNIT I ELECTROPHORESIS [15 hrs]

Units of measurements : units of measurement of solutes in solution, eg. Normality, molality, molarity and millisomol, ionic strength. Examples for this concept. Electrophoresis-Factors affecting migration rate ,Tiselius moving boundary electrophoresis, Paper, Cellulose acetate ,Polyacrylamide, SDS-PAGE and Immunoelectrophoresis

UNIT II ELECTROCHEMICAL TECHNIQUES [15 hrs]

Electro chemical techniques : Principles of electro chemical techniques pH, pOH, buffer, buffer capacity , Henderson-Hasselbach equation, buffers in body fluids, Red blood cells and tissues, Titration curve of amino acids. Measurement of pH using indicator – Glass electrode, oxygen electrode – principle and application of clark electrode.

UNIT III CHROMATOGRAPHY-I [10 hrs]

General principles of chromatography- partition and adsorption. Principle, operational procedure and applications of paper chromatography, column chromatography, ion exchange chromatography, thin layer chromatography

UNIT IV CHROMATOGRAPHY-II [10 hrs]

Procedure and applications of molecular sieve chromatography, affinity chromatography, gas liquid chromatography, HPLC ,reverse phase chromatography (elementary knowledge)

UNIT V CENTRIFUGATION [10 hrs]

Centrifugation technique: Basic principles - types of centrifugation, rotors, Sedimentation rate, Svedberg unit, differential, density gradient, isopycnic and equilibrium centrifugation. Preparative and analytical ultracentrifugation techniques. Determination of molecular weight of proteins by Analytical Ultracentrifuge(derivation not included).

TEXTBOOK:

Upadhyay, Upadhyay & Nath ,"Biophysical Chemistry –Principles and Techniques",
3rd edition,Himalaya Publications,Mumbai.

REFERENCES:

1. A biochemical guide to principles and techniques of practical biochemistry, Keith Wilson & Kenneth Goulding, Cambridge Press.
2. Principles & Techniques of Practical Biochemistry – Keith Wilson, John Walker, Cambridge press.
3. Introduction to Practical Biochemistry – Shawney, Randhir Singh, Narosa Pub, N. Delhi.
4. Analytical Biochemistry – RB Turner, Elsevier, NY.

SEMESTER – III ALLIED MICROBIOLOGY AMBC302

Unit – 1 **(15 Hrs)**

Introduction - History and scope of Microbiology - Shape and Size of bacterial cells - Structure of bacterial cell -Structure and functions of cell organelles (Cell wall, structures found outside the cell wall and within the cell wall) - Structure of Endospore

Unit – 2 **(15 Hrs)**

Microscopy - Simple, Compound, Dark field, Phase contrast, Fluorescent, Electron Microscopes - Staining – Classification Microorganisms - Haeckel's, Whitaker's - Prokaryotes and eukaryotes - Taxonomical ranks - Binomial Nomenclature - Characteristics used in Taxonomy

Unit – 3 **(15 Hrs)**

Sterilization - Physical agents - Moist heat, Dry heat, Radiation, Filtration -Chemical agents - Phenols and phenolic compounds, Alcohols, Gaseous agents - Antibiotics – Classification, Mode of action - Antifungal and antiviral agents – examples

Unit – 4 **(15 Hrs)**

Motility of bacteria - Nutrient requirements of microorganisms - Growth factors - Nutritional types - Culture media - Pure culture - Microbial growth - Growth curve - Measurement of microbial growth - Continuous culture - Environmental factors affecting growth - Bacterial reproduction

Unit – 5 **(15 Hrs)**

Brief description of important groups of bacteria - Archaeobacteria, Spirochetes, Mycoplasma, Actinomycetes, Photosynthetic bacteria, Cyanobacteria, Methanogenic bacteria, Sulfate utilizing bacteria - General characteristics of Algae, Fungi, Protozoa and viruses - Human diseases and the pathogen involved – Role of microorganisms in the environment

Text Books

- Michael J. Pelzar.1993. Jr., E.C.S. Chan, Noel R. Krieg, Microbiology, (Fifth edition), New Delhi.,Tata McCraw Hill.
- Prescott, L. M., J. P. Harely and D. A. Klain, 2003. Microbiology, (5th Edition)
- New York, McGraw Hill,.

Reference Books

- Roger Y. Stanier, John L. Ingraham, Mark L. Wheelis, Page R. Painter, Microbiology, (5th edition), Macmillan.
- Atlas R. A.,1997. Principles of Microbiology (2nd Edition), Iowa, Wm. C. Brown Publishers.
- Talaro K. P. and A. Talaro, 1999 Foundations in Microbiology, (3rd Edition), WCB McGraw Hill

SEMESTER-III FIRST AID AOFA301

UNIT 1: PRINCIPLES AND EMERGENCY FIRST AID

Definition of first aid-objects of first aid –principles of first aid-Responsibilities-golden rules of first aid - kit for first aider

Diagnosis –blood pressure-bleeding or hemorrhage-types of hemorrhage- Wounds-types-open and closed wounds-emergency care for general wounds-wound with foreign body-special wounds-wounds to the palm of the hand, abdominal wounds-

UNIT II: MEDICAL EMERGENCIES

choking-symptoms –signs and treatment –methods of back slap-adults –infants and children-asphyxia –causes-symptoms and signs and treatment- drowning -effects-symptoms and signs and treatment-suffocation – suffocation by poisonous gases.

Diabetic emergencies –Hyperglycemia, Hypoglycemia-symptoms and signs treatment-Liver emergency-Kidney Emergency

UNIT III: INJURIES AND ANAPHYLACTIC SHOCK

Poisoning –Routes of poisoning- Effects of poisoning-treatment and measures-Stroke-Heart Attack-coronary obstruction and cardiac arrest- signs and symptoms –Treatment-insect bites- snake bites-dog bites-symptoms and treatment

-Injuries-head injuries-burns and scalds-chemical burns-electric burns-radiation burns-and cold burns-sign-symptoms and treatment

UNIT IV: COMMON AILMENTS

Head ache- causes-signs and symptoms-treatment-tooth ache-ear ache –causes and treatment-Common cold –cough –Diarrhoea and dysentery-causes-symptoms and signs-treatment-constipation-travel sickness-signs and symptoms-treatment

UNIT V: FOOD AND NUTRITION

Importance of carbohydrates-proteins-fats –their physiological function –Vitamins –fat soluble – water soluble-daily requirements –functions and deficiency

References

1. Sathya Narayanan U,1999, "Biochemistry", (2nd Edition),kolkata,Allied Publishers

2. Manual of First aid –L.C.Gupta Abhitab-2004, jaypee brothers, medical publishers (p)ltd,new delhi,India.

3.Dr. M. Swaminathan,1987, "Food and Nutrition Vol I&II", Second edition,Bangalore, Bappco Publishers

SEMESTER-III AMBCP301 ALLIED MICROBIOLOGY PRACTICAL