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SEMESTER –II

CONSUMER AWARENESS

UNIT - I

Conceptual Framework Concept of Consumer- rights of consumers -Consumer goods, defect in goods, spurious goods and services, service, deficiency in service, unfair trade practice, restrictive trade practices.

UNIT - II

Organizational set-up under the Consumer Protection Act Consumer Protection Councils at the Central, State and District Levels; Adjudicatory Bodies: District Forums, State Commissions, and National Commission: Their Composition, Powers, and Jurisdiction

UNIT - III

Grievance Redressal Mechanism under the Indian Consumer Protection Law Who can file a complaint? Grounds for filing a complaint; Period of Limitation Procedure for filing and hearing of a complaint; Disposal of cases, Relief/Remedy available; Appeal, frivolous and vexatious complaints; Offences and penalties.

UNIT-IV

Role of Industry Regulators in Consumer Protection Banking: RBI and Banking Ombudsman Insurance: IRDA and Insurance Ombudsman,Telecommunication: TRAI , FSSAI, Electricity Supply Electricity Regulatory Commission Real Estate Regulatory Authority

UNIT – V

Contemporary Issues in Consumer Affairs Formation of consumer organizations and their role in consumer protection, Misleading Advertisements -National Consumer Helpline.

TEXT BOOKS

Sl.No. Author Name Title of the Book Publisher Year and Edition

1. Meenu Agarwal Consumer Behaviour & Consumer protection in India New Century Publications, New Delhi 2006

2. Sherlakar SA Trade Practices & Consumerism Himalaya Publishing House, Bombay 1977

REFERENCE BOOKS

Sl.No. Author Name Title of the Book Publisher Year and Edition 1. Francis Cherunilam Business Environment Himalaya Publishing House, New Delhi 2000

2. Jain, N.K Consumer Protection-Law and Practice Regal Publications, New Delhi 2008

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SEMESTER –III

CO-OPERATIVE FINANCE AND BANKING

UNIT – I

Agricultural Credit : Evolution and Structure of Co-operative Credit Movement in India.

UNIT – II

Primary Agricultural Cooperative Credit Society : Objectives and Functions of Primary Agriculture Credit Societies in India

UNIT – III

DCCB & SCB : Functions of District Central Co-operative Banks and State Co-operation Banks

UNIT – IV

Long Term Credit : Long Term Loans by Co-operative Land Development Banks (Primary Cooperative Agriculture and Rural Development Banks)

UNIT – V

Non Agricultural Credit: Functions of Urban Co-operative Banks and Employees Co-operative Thrift and Credit Societies.

REFERENCE BOOKS

1. Hejela.T.N., Principles, problems and Practice of Co-operation, Konark Publishers, New Delhi, 2000.

2. Mathur B,S. Co-operation in India, Sahithya Bhavan Publishers, Agra 1989 3. Bedi, R.D, Theory, History and practice of Co-operation. R.Lal Book Depot, Meerut, 2001

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SEMESTER -IV

ADVERTISING AND SALESMANSHIP

UNIT-I

Advertising: Introduction- definition- meaning- objectives and significance Advantages of advertising.

UNIT-II

Advertising Media: Importance- Selection of media –kinds of media-merits and demerits.

UNIT-III

Salesmanship- meaning- objectives- importance

UNIT-IV

Sales organizations- Functions , duties and responsibilities of sales manager.

UNIT-V

Sales Promotion-definition- objectives- importance –kinds of promotion- advantages and limitations.

REFERENCE BOOKS:

1. Pillai, R.S.N., & Bhagavathi, Marketing, S.Chand and Co. 1996.
2. Chunawala and Reddy, Advertising and Marketing Research, Himalaya Publications, New Delhi.1996.
3. Sinha, J.C.,Principles of Marketing and salesmanship, S.Chand and Co. New Delhi, 1980
4. Richard R. Still& Edward W. Cundiff, Sales Management, Prentice Hall of India Pvt. Ltd., New Delhi, 1999.

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SEMESTER - V

INSURANCE

UNIT - I

Insurance: Meaning, functions, nature and principles of insurance, need and importance of insurance to individuals and business – Insurance as a social security Tool

UNIT - II

Life Insurance: Features of a life insurance contract – classification of policies – investment of funds – surrender value – bonus option – policy condition – annuity contracts.

UNIT - III

Marine Insurance: Contract of marine insurance – elements of marine insurance – classes of policies – policy conditions – clause in a marine insurance policy – marine losses.

UNIT - IV

Fire Insurance: Features of a fire insurance – kinds of policies – policy conditions – payment of claims – reinsurance.

UNIT - V

Miscellaneous Insurance: Motor insurance – Burglary – Personal accident insurance – Health Insurance – Liability Insurance- Bancassurance.

REFERENCE BOOKS:

1. M. N. Mishra, Insurance Principles And Practice,S. Chand & Co, New Delhi,2000
2. M.N.Mishra, Modern concepts of Insurance, S.Chand&Co., 2000 P.S . Palandi,
3. Insurance in India, Response Books – Sagar Publications, 2000

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SEMESTER - VI

FUNDAMENTAL OF ACCOUNTING

UNIT- I

Introduction to Accounting: Definition of Accounting, needs of accounting, objectives, advantages- types of Accounting- double entry system and its advantages- single- entry system and its limitation.

UNIT-II

Recording of Transactions Kinds of Accounts- Rules for recording transactions- Books of accounts- Subsidiary Books- Journal, Petty Cash Book, Cash Book (Problems), bank Reconciliation Statement (Problems) , Purchase Book, Sales Book, Purchase returns book, Sales returns book, bills payables books.

UNIT-III

Ledger Accounts : Balancing ledger Accounts- Trail Balance, meaning, objectives, scope and preparation- Errors and their rectifications. UNIT-IV Final Accounts: Trading, Profit and loss accounts and balance sheetobjects, Adjusting entries, Depreciation: Meaning - Reasons and Methods.

Unit-V

Accounts of Non-Profit organizations: Receipts and Payments of AccountsIncome and Expenditure Accounts- Balance Sheet, Capital and Revenue expenditure- Accounts curren_t Average due date (Problems).

References

1. Financial Accounting- R.L.Gupta and V.K.Gupta - Sultan Chand & Sons, New Delhi.

2. Financial Accounting - S.P.Jain and K.L.Narang - Kalyani Publishers,Ludhia

3. Financial Accounting - Reddy and Murthy- Margham Publications,Chennai-17.

4. Advanced Accounting I - Dr.Chandra Bose PHI Learning (P) Ltd 3.Advanc

5. Accounting I - Dr.S.Peer Mohamed Dr.S.A.N.Shezuli Ibrahim PassPublication, Madurai.

Computer Science

Semester-II

UNFIED MODELING LANGUAGE

UNIT – I

Introduction : Role of Analysis and Design in Software Development - Object Orientation - Overview of various OOAD Methodologies - Goals of UML. Use Case Modeling: Actors and Use Cases - Use Case Relationships - Writing Use Cases Formality -Choosing the System Boundary - Finding Actors - Finding Use Cases -Use of Use Cases for Validation and Verification - Use case Realization.

UNIT - II

Static Modelling Using Class Diagrams: Classes and Objects - Attributes and Operations - Visibility of Attributes and Operations - Class Scope Attribute - Mapping Class to Java Code - Attributes with Default Values - Association - Role Names -Qualified Association - Association Class - Ternary Association - Recursive Association - Multiple Association between Two Classes - Aggregation - Generalization - Abstract Class - Subclass Partitioning - Generalization Set - Interfaces - Packages and Grouping of Classes into Packages -Parameterized Classes.

UNIT- III

Interaction Diagrams: Introduction to Interaction Diagram - Creating New objects - Combining Fragments - Communication Diagrams.

UNIT - IV

Dynamic Modelling Using State and Activity Diagrams: State Machines - Events - States and Transitions - Formal Syntax for Specifying a State Transition - Substates - Modelling Complex Transitions - The History Indicator - The Junction State- The Synch State - The Submachine Reference and the Stub States -Activity Diagrams - Swimlanes - Dynamic Concurrency - Decomposing an Activity - Activity diagrams for Career Guidance Portal. The unified Process of Software Development: The Unified Process of Software Development - Phases of the Unified Software Development Process - Best Practices in the Unified Process - Workflows of the UP.

UNIT - V

Architectural Modelling: Subsystem - Broker Architecture for Distributed Systems- Model View Controller Architecture - Component Diagrams - Deployment Diagrams. Case Study: Simulation of Cell Phone - Social Networking Site.

TEXT BOOK

1. Mahesh P.Matha, "Object Oriented Analysis and Design Using UML", PHI Learning Private Ltd. NewDelhi, 2010.

REFERENCE BOOK

1. Jason T. Roff, "UML -A Beginner's Guide", 1st Edition, Tata McGraw - Hill, 2003.

Computer Science

Semester-III

OFFICE AUTOMATION TOOLS

UNIT- I

Introduction to Computers - Five Generations of Modern Computers - Classification of Digital Computer Systems - Anatomy of a Digital Computer - Memory units - Input and Output Devices - Auxiliary Storage Devices.

UNIT- II

Getting Started: Starting a Program - Identifying Common Screen Elements - Choosing Commands - Finding Common Ways to Work - Getting Help with Office

UNIT- III

MS-WORD: Learning Word Basics - Formatting a Word Document - Working with Longer Document.

UNIT- IV

MS-EXCEL: Creating a Simple Spreadsheet - Editing a Spreadsheet - Working with Functions and Formula - Formatting Worksheets - Completing Your Spreadsheet – Creating Charts

UNIT- V

MS-POWERPOINT: Creating and Viewing Presentations - Editing a Presentation - Working with Presentation Special Effects.

TEXT BOOK

1. Alex Leon, Mathew Leon, ”Introduction to Computers”, Vikas Publishing, 2008.

2. Diane Koers, “Microsoft Office XP - fast & easy”, Prentice Hall of India Private Limited, New Delhi, 2001

REFERENCE BOOKS

1. Joyce Cox &Team, “Step by Step 2007 Microsoft Office System”, PHI Learning Private limited, New Delhi, 2009.

2. Peter Weverka, “MS Office 2013 All-in-One for Dummies”, 1st Edition, Wiley Publications, 2013.

Computer Science

Semester-IV

PARALLEL PROCESSING

UNIT - I

Parallel Computer Models: The State of Computing - Computer development milestones-Elements of modern computers-Evolution of computer architecture- System attributes to performance. Multiprocessors and Multicomputer: shared-memory and multiprocessors-Distributed-memory multicomputer- A Taxonomy of MIMD computers. Multi-vector and SIMD Computers: Vector super computers-SIMD super computers. PRAM and VLSI Models: Parallel Random-access machinesVLSI complexity model. Architectural Development Tracks: Multiple-processor tracks-Multi-vector and SIMD tracks.

UNIT-II

Program and Network Properties: Conditions of Parallelism - Data and resource dependences-Hardware and software parallelism-The role of compilers. Program Partitioning and Scheduling: Grain sizes and latency-Grain packing and scheduling-Static multiprocessor scheduling-Program Flow Mechanisms: Control flow versus data flow-Demand-driven mechanisms- System Interconnect Architectures: Network properties and routing- Static connection networks- Dynamic connection networks.

UNIT -III

Principles Of Scalable Performance: Performance Metrics and Measures - Parallelism profile in programs-Harmonic mean performance-Efficiency, utilization, and quality-Standard performance measures. Parallel Processing Applications: Massive parallelism for grand challenges-Application models of parallel computers. Speedup Performance Laws: Amdahl's law for a fixed workload. Scalability Analysis and Approaches: Scalability metrics and goals-Evolution of scalable computers.

UNIT -IV

Processors and Memory Hierarchy: Advanced Processor Technology - Design space of processors – Instruction set architectures. Superscalar and Vector Processors: Superscalar processor. Memory Hierarchy Technology: Hierarchical memory technology. Virtual Memory Technology: Virtual memory models- TLB, paging and segmentation.

UNIT -V

Pipelining: Linear Pipeline Processors - Asynchronous and synchronous models-Clocking and timing control-speedup, efficiency and throughput. Nonlinear Pipeline Processors: Reservation and latency analysis-Collision-Free scheduling-Pipeline schedule optimization. Instruction Pipeline Design: Instruction execution phases-Mechanisms for instruction pipelining-Dynamic instruction schedulingBranch handling techniques. Arithmetic Pipeline Design: Computer arithmetic principles-Static arithmetic pipelines-Multifunctional arithmetic pipelines.

TEXT BOOK 1. Kai Hwang, —Advanced Computer Architecture‖, TMGH, India, 2008. REFERENCE BOOK 1. Behrooz Parhami, —Introduction to Parallel Processing – Algorithms and Architectures‖ Plenum series, 2002

Computer Science

Semester-V

IMAGE EDITING TOOL

UNIT-1

Getting Started with Photoshop CS5: Launching Photoshop CS5 - Exploring the Interface - Using Screen Modes - Opening an Existing Image - Opening an Image Using Adobe Bridge - Exploring Commonly Used Tools in the Tools Panel - Creating a New Document - Saving a Document - Reverting a Document- Selecting a Workspace - Creating a New Workspace - Deleting a Workspace - Working with Panels in Photoshop CS5 - Keyboard Shortcuts and Menu Settings - Customizing Preferences.

UNIT-2

Working with Images: Differences between Bitmap and Vector Images - Understanding Image Resolution Editing Images - Different Color Modes in Photoshop CS5 - Making Color Adjustments - File Formats in Photoshop CS5 -Creating a PDF File in Photoshop CS5 - Importing a PDF File into Photoshop CS5 - Making a Selection with Selections Tools - Modifying a Selection- Transforming a Selection - Transforming Pixels.

UNIT-3

Mastering Layers in Photoshop CS5: Exploring LAYERS Panel - Working with Layers -Organizing Layers Working with Opacity and Blend Modes - Working with Adjustment Layers - Masking in Photoshop CS5 - Setting the Current Foreground and Background Colors - Filling a Selection with the Current Foreground Color - Using the Content-Aware Feature - Exploring Drawing Tools - Exploring Painting Tools - Exploring Retouching Tools.

UNIT-4

Working with Layer Styles and Filter Effects: Understanding Layer Styles - Working with Smart Objects - Understanding Filters.

UNIT-5

Animation, 3D, and Printing in Photoshop CS5: Working with Actions - Working with Automate Commands - Exploring 3D in Photoshop - Working with Animation in Photoshop CS5 - Printing in Photoshop Cs5.

TEXT BOOK

1. Kogent Learning Solutions Inc, "Photoshop CS5 in Simple Steps", Dreamtech Press, New Delhi, 2012.

REFERENCE BOOKS

1. Brie Gyncild, "Adobe Photoshop CS6 Classroom in a Book", Adobe Press/Peachpit, 2012
2. Lisa Danae Dayley, Brad Dayley , "Adobe Photoshop Cs6 Bible", Wiley India Pvt Ltd.
3. Edward Bailey, "Photoshop: 7 Ways to Use Adobe Photoshop Like a Pro", Create space Independent Publishing Platform

Computer Science

Semester-VI

INTRODUCTION TO HTML

UNIT-I

Introduction : Web Basics: What is Internet–Web browsers– What is Webpage – HTML Basics: Understanding tags.

UNIT-II

Tags for Document structure (HTML, Head, Body Tag). Block level text elements : Headings paragraph (Tag) –Font style elements: (bold, italic, font, small, strong, strike, big tags)

UNIT-III

Lists: Types of lists: Ordered, Unordered– Nesting Lists–Other tags: Marquee, HR, BR – Using Images – Creating Hyperlinks.

UNIT-IV

Tables: Creating basic Table, Table elements, Caption–Table and cell alignment–Rowspan, Colspan– Cell padding.

UNIT-V

Frames: Frameset –Targeted Links–No frame–Forms: Input, Textarea, Select, Option.

TEXT BOOKS

Mastering HTML5 and CSS3 Made Easy‖, Teach U Comp Inc., 2014.

REFERENCE BOOKS

Thomas Michaud, “Foundations of Web Design: Introduction to HTML & CSS”

B.SC. CHEMISTRY

SEMESTER-II

DYE STUFFS AND TREATMENT OF EFFLUENTS

UNIT-I

1.1 Introduction, Definition- Dye, colour, chromophore, auxochrome, bathochromic effect and hypso chromic effect

1.2.Classification- acid, base, azo, vat and reactive dyes.

UNIT-II

2.1.Various methods of dyeing- Direct, vat, mordant and disperse.

2.2.Anthroquinone and Mordant Dyes- synthesis and applications of Alizarin.

UNIT III

3.1. Diphenylmethane Dyes- synthesis and application of Auramine

3.2. Triphenylmethane Dyes- Malachite Green, Crystal Violet,Pararosaniline-Preparation and applications.

3.3.Indigo Dyes-Preparation and application of Indigo.Derivatives of Indigo-Synthesis and uses of Indigosol and tetrabromo indigo-(Ciba blue)

UNIT-IV

4.1.Phthalein Dyes-Phenolphthalein- Preparation and applications

4.2.Xanthein Dyes-Rhodamine B, Fluorescein - Preparation and applications.

4.3.Acridine dyes- synthesis and application of Acridine orange NO

4.4 .Reactive dyes – synthesis and applications of Procion Blue HB.

UNIT-V

5.1.Textile Effluent-Characteristics,effect of untreated effluent,degradability of wastes. Effluent treatment plants-Aerated lagoon,photo oxidation process.

References:

1.B.K.Sharma, Industrial Chemistry ,Goel Publishing co,1997

2.R.Chatwal ,Synthetic Dyes -Himalayan Publishing House,1995

3.R.S.Prayag, Dyeing of wool, Silk and man made fibres. 4.V.A.Shenai, Chemistry of Dyes and Principles of Dyeing

B.SC. CHEMISTRY

SEMESTER-III

TEXTILE CHEMISTRY

UNIT - I

General classification of fibres-chemical structure, production, properties and uses of the following natural fibres (a) natural cellulose fibres (cotton and jute) (b) natural protein fibre (wool and silk).

UNIT - II

Chemical structure, production, properties and uses of the following synthetic fibres. (i) Man made cellulosic fibres (Rayon, modified cellulose fibres) (ii) Polyamide fibres (different types of nylons) (iii) Poly ester fibres.

UNIT - III

Impurities in raw cotton and grey cloth, wool and silk- general principles of the removal – Scouring – bleaching – Desizing – Kierboiling- Chemicking. UNIT - IV Dyeing - Dyeing of wool and silk –Fastness properties of dyed materials – dyeing of nylon, terylene and other synthetic fibres.

UNIT - V

Finishing- Finishes given to fabrics- Mechanical finishes on cotton, wool and silk, method used in process of mercerizing –Anti-crease and Anti-shrink finishes –Water proofing

Reference

1.Chemical Technology of fibrous Materials – F.sadov, M.Horchagin and A.Matetshy, Mir Publishers.
2.The Identification of Textile Fibres – Bruno Nuntak.

3.Introduction to Textile Science -3rd edition, Maryory L.Joseph.

4.Textile Chemistry –Vol.II R.H.Peters, Elserier, Avesterdam.

5.Dyeing and chemical Technology of Textile fibres-5th Edition, E.R.Trotman,Charles Griffin & Co Ltd
6.Chemistry of dyes & Principles of Dyeing -V.A.Shenai, Sevak Publications.

7.Scouring and Bleaching E.R.Trotman, Charles Griffin & Co Ltd.

8.Text Book of Applied Chemistry- K.Kapur. 9.A Students Text Book of Textile Science- A.J.Hall

B.SC. CHEMISTRY

SEMESTER-IV

MEDICINAL CHEMISTRY

UNIT I-

Introduction Common diseases – infective diseases – insect – borne, air – borne and water-borne – hereditary diseases – Terminology – drug, pharmacology, antimetabolites, absorption of drugs – factors affecting absorption –therapeutic index (Basic concepts only)

UNIT II

Drugs Various sources of drugs, pharmacologically active constituents in plants, Indian medicinal plants – tulsi, neem, keezhanelli – their importance – Classification of drugs– biological chemical (Structure not required) Drug receptors and biological responses– factors affecting metabolism of drugs. (Basic concepts only)

UNIT III

Chemotherapy Drugs based on physiological action, definition and two examples each of anesthetics-General and local – analgesics – narcotic and synthetic – Antipyretics and anti inflammatory agents – antibiotics – Penicillin, Streptomycin, Antivirals, AIDS – symptoms, prevention, treatment – Cancer (Structure not required)

UNIT IV

Common body ailments Diabetes – Causes, hyper and hypoglycemic drugs – Blood pressure – Sistolic &Diastolic Hypertensive drugs – Cardiovascular drugs – depressants and stimulants –Lipid rofile – HDL, LDL cholesterol lipid lowering drugs. (Structure not required)

UNIT V

Health promoting drugs Vitamins A,B, C, D, E and K micronutrients – Na, K, Ca, Cu, Zn and I, Medicinally important inorganic compounds of A1, P, As, Hg and Fe, Examples and applications, Agents for kidney function (Aminohippuric acid). Agents for liver function (Sulfo bromophthalein), antioxidants, treatment of ulcer and skin diseases. (Structure not required)

RECOMMENDED TEXT BOOKS:

1.S.Lakshmi Pharmaceutical Chemistry, S.Chand & Sons, New Delhi, 2004

2.V.K. Ahluwalia and Madhu Chopra, —Medicinal Chemistry, Ane Books, New Delhi, 2008

3.P.Parimoo, — A Text Book of Medicinal Chemistry, CBS publishers, New Delhi, 2006

RECOMMENDED REFERENCE BOOKS

1.Ashutosh Kar, —Medicinal Chemistry, Wiley Eastern Ltd., New Delhi, 1993.

2.David William and Thomas Lemke, Foyes Principles of Medicinal Chemistry, BI Publishers.

3.Romas Nogrady, Medicinal Chemistry, Oxford Univ. Press

B.Sc. CHEMISTRY

SEMESTER V

DYE CHEMISTRY

UNIT-I

1.1 Colour and constitutions, Definition - Dye, chromophore, auxochrome, bathochromic effect and hypsochromic effect –Quinoid theory.

1.2 Classification- acid, base, azo, vat and reactive dyes.

1.3 Anthroquinone and Mordant Dyes- synthesis and applications of Alizarin.

UNIT II

2.1 Diphenylmethane Dyes- synthesis and application of Auramine -

2.2 Triphenylmethane Dyes - Malachite Green, Crystal Violet, Pararosaniline – Preparation and applications.

2.3 Indigo Dyes-Preparation and application of Indigo.Derivatives of Indigo-Synthesis and uses of Indigosol and tetrabromo indigo-(Ciba blue)

UNIT-III

1.1 Phthalein Dyes – Phenolphthalein – preparation and applications.

1.2 Xanthein Dyes – Rhodamine B, Fluorescein – Preparation and applications.

1.3 Acridine dyes – synthesis and application of Acriflavin and proflavin.

1.4 Reactive dyes – synthesis and applications of Procion Blue HB.

UNIT-IV

Pigments

4.1 Requirements of organic pigments- Types of pigments-Applications. Fluorescent, Brightening agents.

4.2 Applications of dyes in other areas- medicine, chemical analysis, cosmetics, colouring agents.

UNIT-V

5.1 Textile Effluent-Characteristics, effect of untreated effluent, degradability of wastes

5.2 Effluent treatment plants-Aerated lagoon, photo oxidation process.

References:

1. B.K.Sharma, Industrial Chemistry ,Goel Publishing co,1997
2. Gurdeep R.Chatwal ,Synthetic Dyes -Himalayan Publishing House,1995
3. R.S.Prayag, Dyeing of wool, Silk and manmade fibres.
4. V.A.Shenai, Chemistry of Dyes and Principles of Dyeing.
5. K. Venkataraman, The Chemistry of synthetic dyes.

B.Sc. CHEMISTRY

SEMESTER VI

PHARMACEUTICAL CHEMISTRY

UNIT-I

1.1.Definition of the terms-drug,pharmacophore, pharmacodynamics, pharmacopoea, pharmacology, bacteria, virus ,fungus, actinomycetes, metabolites, antimetabolites,LD50,ED50. Therapeutic index.

UNIT-II

2.1. Sulphonamides-mechanism and action of sulpha drugs- preparation and uses of sulphadiazine, sulphapyridine.

2.2. Antibiotics-Definition-classification as broad and narrow spectrum, Antibiotics-penicillin, ampicillin, structure and mode of action only (no structural elucidation, preparation, assay)

UNIT-III

3.1. Analgesics-definition and actions-narcotic and non narcotic-morphine, Heroin. 3.2. Antipyretic analgesics-salicylic acid derivatives-methyl salicylate, aspirin

UNIT –IV

4.1. Anaesthetics-definition-classification-local and general- volatile, nitrous oxide, ether, chloroform, uses and disadvantages – nonvolatile – intravenous - thiopental sodium, -local anaesthetics –cocaine and benzocaine.

4.2. Antianaemic drugs-iron, vitamin B12 and folic acid-mode of action.

UNIT-V

5.1. Diabetics-Hypoglycemic agents-sulphonyl urea, biguanides.

5.2. AIDS-causes, prevention and control.

5.3. Indian medicinal plants and uses-tulasi, kilanelli, mango, semparuthi, adadodai and thoothuvalai.

NUTRITION AND DIETETICS
SEMESTER – II
FOOD PROCESSING

UNIT-I

Scope and importance of food processing. Cereal – processing of raw and parboiled rice and rice products- Puffing and flaking. Wheat and corn processing, feed for livestock from wheat bran and germ. Potato processing – potato chip, flakes and powder.

UNIT-II

Decortication processing of legumes, effect of processing of legumes on their nutrient composition and quantity and quality, quick cooking legumes, instant legume powders, legume protein concentrates, by-products utilisation of legume processing and storage of legumes.

UNIT III

Processing of oil seeds, packing and storage of fats and oils, change during storage of oils. Oil speciality products-margarine, mayonnaise, salad dressing and fat substitutes, Nutritional food mixes from oilseeds – processing oil seeds for food use, protein enriched foods

UNIT IV

Storage and handling of fresh fruits and vegetables, processing of fruits and vegetables juice concentrates and powders, by- products from fruits and vegetables waste. Canning process of fruits and vegetables. Cultivation of mushroom and its processed products.

UNIT V

Processing of milk, manufacture of butter, paneer and cheese.

Fish processing –canning, freezing, drying, salting, smoking and curing, uses of by-products.

Meat processing - curing and smoking,

Poultry and egg powder – processing and storage.

REFERENCES

1. Norman N. P. and Joseph H.H, Food science, CBS Publishing New Delhi, 1997.

2. Stadelman W.J., Olson V.M, Shemwell G.A and Parch S., Egg and poultry meat processing, Elliwood Ltd, 1998..

3. Subbulakshmi G., Shobha A. Udipi, Food processing and preservation, New age international publisher, New Delhi, 2008.

4. Sivasankar B., Food Processing and Preservation, PHI Learning private limited, New Delhi, 2015.

5. Sumati R. Mudambi,M.V. Rajagopal., Fundamental of food, nutrition and diet therapy. New age international publishers, New Delhi, 2015.

NUTRITION AND DIETETICS
SEMESTER-III
FOOD PACKAGING

UNIT-I

Food packaging- Definition, functions and levels of packaging. Packaging materials: Introduction, purpose, requirements and characteristics of packaging materials. Packaging materials for processed foods: Metal cans- Types and their recommended uses. Glass containers- Characteristics, advantages and surface treatments.

UNIT-II

Plastics: General properties, pack requirements, applications, types of packaging plastics- PET, HDPE, PVC, LDPE, PP and PS; plastic films- types and applications; advantages of usage of plastic in food packaging; shrink and stretch films- properties, advantages and disadvantages. Papers: Types, uses in packaging; corrugated board and solid fiber board- introduction. Aseptic packaging: Introduction and heating systems involved.

UNIT-III

Modified atmosphere packaging (MAP): Definition, gases used in MAP, types and active packaging. Microwave or enable packages: Meaning and advantages. Retortable packages: Types and advantages.

UNIT-IV

Packaging of cereals: Storage of wheat, rice, breakfast cereals and pasta. Packaging of dairy products: Packaging materials used in dairy industries. Packaging of fruits and vegetables: Packaging of fresh produce and packaging of minimally processed fruits and vegetables. Packaging of meat: Packaging of fresh meat, poultry and eggs.

UNIT-V

Application of nanotechnology in food packaging and its benefits. Future of food packaging: Smart packaging and activated packaging; RFID tags in packaging, intelligent packaging, self heating and self chilling packages. Labeling: Definition, purpose, types, materials used, regulations, recent trends, thermo chromic labeling.

REFERENCES

1. NIIR Board of consultants and engineers, Food packaging technology, Hand book, NIIR, Delhi.

2. Neelam Khetarpaul and Darshan Punia, Food Packaging, Daya publishing house, New Delhi. 2012.
3. Vijaya Khader, Text book of food science and technology, Indian council of agricultural research, New Delhi, 2001.

NUTRITION AND DIETETICS
SEMESTER-IV
FOOD BIOTECHNOLOGY

UNIT-I

Biotechnology- Meaning and importance, history of biotechnology- traditional and modern biotechnology. Genetically modified foods- Definition and examples, advantages, disadvantages and safety aspects of foods produced by genetic engineering.

UNIT-II

Food biotechnology- Single cell protein, algae and spirulina: production and uses; Mushroom-production and processing. Genomics and proteomics- Meaning, types and future; bioinformatics- meaning, sequences and nomenclature; information sources; uses.

UNIT-III

Enzymes- Role in food processing, importance; applications- industrial application of microbial enzymes; production of amylase, lipase and pectinase; immobilized enzymes and their applications.

UNIT-IV

Fermentation- Types, advantages, factors controlling; batch fermentation and continuous fermentation; Fermented products- citric acid, lactic acid, vinegar, wine, beer, oriental fermented foods- tempeh and tofu.

UNIT-V

Biotechnology and biosafety- Introduction to intellectual property rights; intellectual property laws; Trade Related Aspects of Intellectual Property Rights. Forms of IPR like patent, design and copyright trademark; Bioethics: Necessity of bioethics, different paradigms of bioethics- national and international.

REFERENCES

1. R.C. Dubey, A text book of Biotechnology, S.Chand and company, New Delhi, 2005.

2. S.N. Tripathy, Food biotechnology, Dominant publishers and distributors, 2006.

3. Kumar, H.D., A text book of Biotechnology, Affiliated East-West Press pvt ltd., New Delhi, Second edition, 2004.

4. Kumaresan.V., Biotechnology, Saras Publication, 2005.

NUTRITION AND DIETETICS
SEMESTER-VI
SANITATION AND HYGIENE IN FOOD INDUSTRIES

UNIT-I

Sanitation: Definition and meaning, deteriorative effects of micro organisms- physical and chemical changes; methods of killing micro organism- heat, chemicals and radiation; methods of inhibiting microbial growth- refrigeration, chemicals, dehydration and fermentation.

UNIT-II

Contamination of food products: Contamination of red meat, poultry and sea food during processing, contamination of dairy products and other food; contamination of ingredients; other sources of contamination- equipment, employees, air and water, sewage, insects and rodents; protection against contamination- protection against environment, protection during storage, protection against contamination from litter and garbage, protection against toxic substances.

UNIT-III

Cleaning compounds: Characteristics of good cleaning compound, classification- alkaline cleaning compound and acid cleaning compound, synthetic detergents, soaps, solvent cleaners; detergent auxiliaries- protection and cleaning auxiliaries; scouring compounds; selection of effective cleaning compound. Sanitizers: Meaning, Types: thermal sanitizing, radiation sanitizing and chemical sanitizing.

UNIT-IV

Cleaning steps in dairy industry; sanitation practices and procedures in meat processing industry; cleaning steps in sea food plants; cleaning procedure for vegetable and fruit processing industry; cleaning steps of a food service facility.

UNIT-V

Waste disposal: Solid waste disposal; waste water handling- pre treatment, primary treatment, secondary treatment, tertiary treatment and disinfection. Personal hygiene: Definition, need, personal hygiene and contamination of food products; requirements for hygienic practices; sanitary handling of food.

REFERENCES

1. Norman G. Marriott, Principles of sanitation, Van Nostrand Reinhold company, Newyork. 1985.
2. Mario Stanga, Sanitation: Cleaning and Disinfection in the Food Industry, Wiley, 2010.
3. Y. H. Hui, L. Bernard Bruinsma, J. Richard Gorham, Wai-Kit Nip, Phillip S. Tong, Phil Ventresca, Food plant sanitation, CRC Press, 2002.
4. Y. H. Hui, Plant sanitation for food processing and food service, CRC Press, 2014.

BBA

SEMESTER-II

Business Process Outsourcing

UNIT – I

BPO – Meaning – Definition – Evaluation & Recent Development – Insourcing – Outsourcing – Needs – Technical requirement – Eligibility.

UNIT – II

Call Centers – Functions – Processes – classifications – Telemarketing – Tele selling – Preparing for a Job – Approach – Preparation – Training – Selection Process.

UNIT – III

Improving Efficiency – Handling Calls – Team Player – Pleasing the Customers – Converse efficiently – Reducing stress.

UNIT – IV

Numerical aptitude – Basic Computer Skills – Type Master – Written Test – Interviews – Telephonic Interviews.

UNIT – V

Good Communicator – Ability to lead – Pleasing personality – Physical fitness – Dress Consciousness – Other Personality development.

REFERENCE BOOKS

i). Fundamentals of Computer Science & Communication engineering by Alexis Leon, Mathew Leon.

ii). Quantitative Aptitude by R.S. Agarwal

iii). English Conversation Practice by Grand Tailor

iv). English Course by Lingua Phone

v). Adult Faculty by Kev Nair

BBA

Semester-III

PRACTICE OF BUSINESS RELATIONS

UNIT – I

Public Relations – definition – essentials of good public relations – public relations for commercial organization.

UNIT – II

Public Relations officer's (PRO'S) role – responsibilities –press relation – preparation of material for the media – news and news reporting – editorial reviews – articles – public relations department.

UNIT – III

Training of public relations officers – PR society of India – Indian institute of mass communication – Indian press – Trade fair authority of India.

UNIT – IV

Book Publications in India – Role of publishers, distributors and booksellers – electronic media – radio – television – house journals – documentary films – mobile film shows – film censorship – guidelines.

UNIT – V

Exhibition and trade fair – consumer and marketing fair – photography – folk dance – sponsorship programme – music festivals.

TEXT BOOK

1. Management of Public relations – S. Senguptha , vikas publishing house

REFERENCE BOOKS

1. Lecture on applied public relations – Prof.K.R. Balan, Sulthanchand&sons Delhi.
2. Public relations problems and prospects with case studies – Anil baby, Space age publications, New Delhi.
3. Hand book of PR in India – D.S. Menta, allied publisher (p) Ltd New Delhi.
4. The practice of public relations – Frason p. Seital,Charler E Merial Publishing Company , Columbus.

BBA

Semester-IV

PROJECT METHODOLOGY

UNIT – I

Introduction: Project – Meaning – Features – Objectives of project – Difference between dissertation and Thesis.

UNIT – II

Identification of project problems – Problems related to Finance, Marketing, HRM, EDP, Banking.

UNIT – III

Review of Literature – Sampling – Selection of sample – Collection of data.

UNIT – IV

Data analysis – Percentage and trend analysis – Numerical evaluation – Justification and interpretation.

UNIT – V

Project Report Writing.

TEXT BOOK:

1. Project Methodology – Senthilkumar.K & Sasikumar.G, Himalaya Publishing House, Mumbai.

2. Research Methodology – Methods and Techniques, C.R.Kothari, Gourav Garg – New age international publishers, New Delhi.

REFERENCE BOOKS:

1. Project Management – K.Nagarajan, New age international publishers, New Delhi.
2. Elements of project management - K.Nagarajan, New age international publishers, New Delhi.
3. A Guide to projects – Dr. R. Ravilochanan, Margham publications, Chennai.

B.B.A.

SEMESTER-V

LIFE SKILL EDUCATION

UNIT I

Definition and Importance of Life Skills, Livelihood Skills, Survival Skills and Life Skills.Life Skills Education, Life Skills Approach, Life Skills Based Education.

UNIT II

Self awareness: Definition, types of self. Self concept, body image, self esteem. Techniques used for self awareness: Johari window, SWOT analysis. Empathy, sympathy & Altruism.

UNIT III

Interpersonal relationship: Definition, factors affecting relationship. Listening: Definition & Tips for Effective listening. Thinking: Nature, Elements of thought. Types of thinking, concept formation,reasoning. Critical thinking: Definition, nature & stages.

UNIT IV

Goal setting. Coping with stress: Definition, stressors, source of stress. Coping skills.

UNIT V

Coping with emotions: Definition, Characteristics and types. Coping strategies.

PRESCRIBED BOOKS

1. Delors, Jacques (1997). Learning: The Treasure Within, UNESCO, Paris..
2. UNESCO (1997). Adult Education: The Hamburg Declaration, UNESCO, Paris.
3. UNESCO (2005). Quality Education and Life Skills: Darkar Goals, UNESCO, Paris.
4. WHO (1999). Partners in Life Skills Education: Conclusions from a United Nations –AgencyMeeting, WHO, Geneva.
5. SantrockW.John (2006). Educational Psychology. (2nd Edn.)New Delhi: Tata McGraw-Hill Publishing Company Ltd.

REFERENCES

1. Dakar Framework for Action, (2000). Education for All: Meeting our Collective Commitments,Dakar, Senegal.
2. Kumar .J. Keval, (2008).Mass Communication in India, JAICO Publication India Pvt. Ltd
3. Morgan and King, (1993). Introduction to Psychology, Tata McGraw-Hill Publishing CompanyLtd, NewDelhi.
4. Rao P.L. (2008). Enriching Human Capital through Training and Development, Excel Books, Delhi.
5. Singh Madhu, (2003). Understanding Life Skills, Background paper prepared for Education forAll: The Leap to Equality

B.B.A.

SEMESTER-VI

CAPITAL MARKET

UNIT-I

Indian capital market: Primary Market (New Issue Market) – methods of floating new issues – parties involved in new issue market – Secondary Market (Stock Exchange) – definition of Stock Exchange – BSE, NSE & OTCEI.

UNIT-II

Mutual Fund: Features & Characteristics – Mechanism of mutual fund operation – benefits of mutual fund – types & various schemes of mutual fund.

UNIT-III

Depository System: Meaning & definition of Depository system – process of dematerialization – NSDC – CDSL.

UNIT-IV

Securities Exchange Board of India (SEBI) – objectives & Functions – powers of SEBI – SEBI guidelines for primary market & Secondary market – measures for investor protection.

UNIT-V

Derivatives – characteristics for derivatives – participants in derivative market – types of financial derivatives – forwards, futures, options & Swaps.

TEXT BOOKS

1.Capital Markets: Institutions and Instruments by Fabozzi and Frank J

Reference Books

1. Financial Market & Services – E. Gardon&Natrajan, Himalaya Publishing House.
2. Financial Services – D. Santhanam, Margham Publication.

ENGLISH

SEMESTER-II

JOURNALISM – BASICS

Unit-I

What is news?
The Reporter
News Editor

Unit-Il

Anatomy of Editing

Unit–III

Language and Style

Unit–IV

Headlines

Unit-V

Design and make-up
Picture Editing and Captions

Prescribed Book:

Rangasamy Parthasarathy : *Basic Journalism, Macmillan*

ENGLISH
SEMESTER-III

TWENTIETH CENTURY LITERATURE

Unit-I Prose

I.A.Richards : Four Kinds of Meaning

Unit-II & III Poetry

T.S. Eliot : The Waste Land

Unit- IV Drama

Bertolt Brecht : Mother Courage and Her Children

Unit- V FICTION

Arvind ADIGA – The White Tiger

ENGLISH
SEMESTER-IV
Personality Traits

Unit–I
Developing Positive Attitude

Unit–II
Forming Values

Unit–III
Career Planning

Unit–IV
Time Management

Unit–V
Stress management

Recommended Book:
Dr. K.Alex: Soft Skills: Know yourself and know the World, S. Chand & Co. (3ed)

B. A. ENGLISH

SEMESTER-V

PRESENTATION SKILLS

Unit–I

Powerful Presentation (1-15)

Unit–II

Reinforcement (16-30)

Unit–III

Using visual aids (31-46)

Unit–IV

Types and Methods of Presentations (47-59)

Unit–V

Obstacles to Presentation (61-75)

Prescribed Book:

Roz Townsend : Presentation Skills for the Upwardly Mobile, Emerald, Chennai

B. A. ENGLISH

SEMESTER-VI

WOMEN'S WRITING IN ENGLISH

Unit–I & II Poetry

Kamala Das - My Grandmother's House

Maya Angelou: Phenomenal Woman

Alice Walker - Am I Blue?

Judith Wright - Clock and Heart

Kishwar Naheed - I am not that woman

Christina Georgina Rossetti – Uphill

Unit-III Prose

Anita Desai – Sale

Unit-IV Fiction

Manju Kapur - Difficult Daughters

Unit-V Short Story

Nadine Gordimer : A Correspondence Course
Bharati Mukherjee : A Wife's Story

B.SC. MICROBIOLOGY
SEMESTER II
MICROBIAL DIVERSITY

Unit-I

Prokaryotic and Eukaryotic microorganisms. Classification of microorganisms. General principles and nomenclature - Hackel three kingdom and Whittaker's five kingdom concept.

Unit- II

Classification and characterization of bacteria (Bergey's manual), structure of bacterial cell. Economic importance of bacteria.General characters of Actinomycetes and their importance.

Unit- III

Taxonomy and General characteristics of Fungus. Fungal cell structure, composition. Mucor, Rhizopus, Aspergillus and Penicillium. Economic importance of fungi. Unit-IV Algae - morphology and general characters - Algal cell structure. Cyanobacteria - salient features and its importance, Heterocyst.

Unit- V

Virus - morphology, general characters, structure of animal virus (Adena virus), plant v1rus (TMV), bacteriophage (T4), insect virus (PV). Protozoa - general characters, structure of Euglena, Paramecium.

REFERENCES

1. Prescott L M, J P Harley and D A Klein (2005). Microbiology. Sixth edition, International edition, McGraw Hill.
2. Dubey RC and Maheswari DK (2012). A text of Microbiology (Revised edition). S.Chand and Company Ltd., New Delhi.
3. GeetaSumbali and Mehrotra RS (2009). Principles of Microbiology. First edition, Tata McGraw Hill P.Ltd., New Delhi.
4. PelczarTR M J Chan ECS and Kreig N R (2006). Microbiology. Fifth edition, Tata McGraw-Hill INC. New York.
5. Robert F Boyd (1984). General microbiology. Times mirror/Mosby college publishers.
6. JagadishChander (1996). A text book of Medical Mycology. Interprint, New Delhi.
7. Atlas and Atlas. Microbiology. Pearson publications. 4TH edition.

B.SC. MICROBIOLOGY

SEMESTER III

ENTREPRENEURIAL MICROBIOLOGY

UNIT I

Entrepreneur development, activity, Institutes involved, Government contributions to entrepreneur, risk assessment, Industrial Microbiology, Definition, scope and historical development.

UNIT II

Microbial cells as fermentation products – Baker's yeast, food and feed yeasts, bacterial insecticides, legume inoculants, Mushrooms , Algae, Enzymes as fermentation products-bacterial and fungal amylases, proteolytic enzymes.

UNIT III

Mushroom cultivation and composting-cultivation of Agaricus campestris, Agaricus bisporous and Volvoriell volvaciae: Preparation of compost, filling tray beds, spawning, maintaining optimal temperature, casing , water harvesting, storage, Biofertilizer-Historical background, chemical fertilizers versus biofertilizers, organic farming . Rhizobium sp., Azospirillum sp., Azotobacter sp., as Biofertilizers

UNIT IV

Brewing - Media components, preparation of medium, microorganisms involved, maturation, carbonation, packaging, keeping quality, contamination, by products. Production of industrial alcohol.

UNIT V

Patents and secret process, History of patenting, composition, subject matter and characteristics of a patent, inventor, infringement, cost of patent. Patents in India and other countries. Fermentation economics.

REFERENCES:

1. Prescott LM, Harley JP and Klein DA (2003) Microbiology (10th edition) McGraw Hill, New York.

2. Pelczar Jr, M.J. Chan, E.C.S and Krei N.R (1993) Microbiology McGraw Hill, New York.

3. Subba Rao NS (1997). Biofertilizer in Agriculture and Forestry, 3rd edition, Oxford & IBU Publications.

4. LE Cassida JR (2005). Industrial Microbiology. New Age International (P) Ltd., New Delhi.

5. Arora. Entrepreneurial Development in India.

6. Aneja, K.R. Experiments in Microbiology, Plant Pathology, Tissue Culture and Mushroom Production Technology, 6th Edition, New age International Publication.

B.SC. MICROBIOLOGY

SEMESTER IV

MUSHROOM - CULTIVATION TECHNIQUES

Unit-I

Edible and non-ediblemushroom (Historical account, most commonly cultivated mushrooms in the world, distribution and production in various countries).Cultivation of button mushroom -morphology raising a pure culture & spawn preparation. Preparation of compost & cultivation methods, harvest.

Unit- II

Cultivation of oyster and paddy straw mushroom - preparation of pure culture & spawn cultivation methods, harvest.Pests and diseases ofEdible mushrooms (Environmental, fungal, bacterial, viral, insect pests and Nematode diseases and competitor moulds.

Unit- III

Ethics of mushroom cultivation while selecting the area, spawn preparation, spawn run, during cropping harvesting etc..Mushroom recipes (western and Indian recipes, pickles, powders, jams etc.)

REFERENCES

1. Zadrazil. F & K. Grabbe 1983 "Edible Mushroom, Biotechnology" Vol. 3, Weinheim: VerlagChemie,Berlin.
2. Kannaiyan. 2001. Handbook of Edible Mushrooms"TNAUPublication
3. Marimuthu,etal.,(1991).OysterMushroom,Dept.ofPlantPathology,TNAU,Coimbatore.
4. NitaBahl(1988).HandbookofMushroom,2ndEdition,Vol.I&II.
5. Tewariand PankajKapoor, S.C. (1988). Mushroom Cultivation. Mittal Publication,Delhi.
6. researchgate.net/publication/316967767_Mushroom_Cultivation_Book_Preprint_version
7. https://books.google.co.in/books/about/Manual_on_Mushroom_Cultivation.html?id=-vxHAAAAYAAJ&redir_esc=y

B.SC. MICROBIOLOGY

SEMESTER V

ELEMENTAL CONCEPTS OF MICROBIOLOGY

UNIT-I

History and scope of microbiology - Louis Pasteur - Robert Koch.Microscope and its applications.Importance of staining.Classification of microorganisms.

Unit- II

Structure and organization of bacterial cell. Sterilization and Disinfection , Methods of sterilizationPhysical and chemical methods.

Unit- III

Culture and media preparation, Nutrition - Different phases of growth - Growth curve .Structure and function of DNA and RNA.

Unit- IV

Antigen, Antibody- Humoral and Cell- Mediated immunity.Blood grouping- Infections - Source and methods.Definitions - Epidemic, Pandemic, Endemic.Normal flora. Bacteria- S. aureus ,E. coli . FungiCandida.Virus- Rabies, HIV, Parasite- Malaria.

Unit- V

Fermentation and its uses.Production of Penicillin and Streptomycin, Beer, Wine, Yoghurt.Plantmicrobial interaction- N 2 fixation in root nodules.

REFERENCES

1. Prescott L M, J P Harley and D A Klein (2005). Microbiology. Sixth edition, International edition, McGraw Hill.

2. PelczarTR M J Chan ECS and Kreig N R (2006). Microbiology. Fifth edition, Tata McGraw-Hill INC. New York.

3. Kuby Immunology - Richard A Goldsby, Thomas J Kindt. Barbara A Osborne, (2000). Fourth edition, W H Freeman and company. New York.

4. Jawetz, Melnick, &Adelberg's. (2013). Medical Microbiology. 26th Edition. McGraw-Hill.

5. Patel AH (2005). Industrial microbiology. Published by Mac Millan India Ltd., Chennai.

6. SubbaRao NS (2004). Soil Microbiology. Fourth edition, Oxford and IBH Publishing Co.Pvt. Ltd., New Delhi.

B.SC. MICROBIOLOGY

SEMESTER VI

CLINICAL LAB TECHNOLOGY

Unit- II

Managing Clinical Microbiology Laboratory. Methods of Collection, transport and processmg of clinical specimens - Blood, Urine, Sputum, CSF, Pus &Faeces for microbiological examination. Separation of blood and serum.

Unit- II

Examination of urine: sample collection, physical and chemical tests, principles and methods, microscopic examination - crystals, casts, sediments, pregnancy test.

Unit- III

Blood smear preparation: Staining differential WBC count - Peripheral blood smear examination and morphological abnormalities - Reticulocyte count - absolute eosinophil count - E.S.R and P.C.V. Blood indices - Platelet count: BT, CT, CRT - Prothrombin time. A.P.P.T and FDP estimation.

Unit-IV

Laboratory methods in Basic Mycology - Collection and transport of clinical specimens - Microscopy, examination of culture media and incubation, Serological test for fungi.Laboratory methods in basic Virology - Viral culture - Media and cells used - specimen processing- Isolation and identification of Viruses. Viral Serology.

Unit- V

Laboratory methods for parasitic infection - Diagnostic techniques for faecal, Gastro intestinal a n dunno genital specimen.Microscopic examination and its significance. ldentification of intestinal protozoa, Blood protozoa, Intestinal and Blood helminthes.

REFERENCES

1. Bailey &Scott's (2014). Diagnostic Microbiology. 13th edition, The C.V. Mosby Company.
2. Abdul Khader. (2003). Medical Laboratory Techniques. First edition, Frontline Publications,Hyderabad.
3. Mukherjee, L. (1997). Medical Laboratory Technology. Volume I & II. Tata McGrew- HillPublishing Company Limited, New Delhi.
4. Sundararaj, T (2005). Microbiology Laboratory **Manual,** Perungudi, Chennai-96.
5. Godkar,P.B. (2003). Textbook of Medical Laboratory Technology, 2nd Edition, BhalaniPublication.
6. Seiverd, Charles, E. Hematology for Medical Technologies, 4th Edition, Lea &Febiger, US.
7. RaminkSood, (2006). A Textbook of Medical laboratory Technology, Jaypee Brothers MedicalPublishers (p).LTD, New Delhi.

B. Sc. TEXTILE AND FASHION DESIGNING

SEMESTER –II

SEWING TECHNOLOGY

Unit – I

Introduction to sewing, History of sewing machines, Sewing Machine – parts and functions of single needle machine, Tools for measuring, marking, cutting & pressing. Selection of thread and needle for various types of fabric.

Unit – II

Classification of sewing machines -Single Needle Lock stitch Industrial model, Over Lock Machine, Zig Zag Multi Purpose Machine, Double Needle Machine, Bar Tack Machine, button hole making machine, button fixing machine, blind stitching machine, fabric examining machine. Machine attachments - care and maintenance of sewing machines.

Unit – III

Basic sewing machines and associated work aids, simple automobiles. The use of components & trims – Labels and motifs, lining, Interlining, wadding, lace, braids & elastics, Hooks and loop fastening, Seam binding and tape, Shoulder pad, Eyelets & laces, Zip fastener, Buttons, Tack buttons, Snap fasteners and Rivets, Performance properties of components and trims. Sewing machines attachments – (Hemmers, Ruffler, Binder, Tucker, cloth guide, zipper foot, gathering foot, feed cover plate, circular attachment). Common problem & remedies.

Unit – IV

Fusing – Definition, advantages of using fusible interlinings, requirement of fusing, Fusing process. The means of fusing, Fusing equipments, Methods of fusing quality control in fusing. Alternative of fusible interlining. Pressing: the purpose of pressing, categories of pressing, means of pressing, pressing equipments and methods, pleating, permanent press. State of pressing.

Unit – V

Stitching mechanism – needles, bobbin and bobbin case, bobbin winding, upper and cover threading, auxiliary hooks, throat plates, take –ups tension disc. Feeding mechanism – drop feed, different fed, needle feed, compound feed, puller feed.

Reference:

1. The Technology of Clothing manufacture, Harold Carr abd Barbara Catham, Blackwell Science (1994)
2. Goswami, B.C. " Textile Yarns", Technology, Structure and applications", Mc graw Hill.
3. Chris Jefferys (2004), 101 Essential Tip- Basic Sewing, D.K. Publishing
4. Besty Hosegood (2006), The complete book of sewing, Dorling Kindersley Ltd., London.
5. Thomas Anna Jacob, "The art of sewing:, USB publishers New Delhi, 1994. 6. Readers Digest Sewing book.

B. Sc. TEXTILE AND FASHION DESIGNING

SEMESTER -III

FASHION CLOTHING AND PSYCHOLOGY

UNIT - I

Origin of Fashion – Importance of fashion - Development of fashion, Components of fashion -, Design Details, Texture ,Color and Silhouette . Types of silhouette – Natural Body, Slim line, Wedge , Hour Glass , Extreme Volume Silhouette.

UNIT - II

Fashion Focus – The designers Role , The Manufacturers Role, The Retailers Role . Scope of Fashion Business – Primary Level, The Secondary Level , The retail level and the Auxiliary level. Study about International Designers – Fashion related cycle and theories.

UNIT - III

The Movement of Fashion - Factors influencing fashion movement - Accelerating factors, Retarding factors, and Recurring fashions. Predicting the movement of fashion.

UNIT - IV

Types of designers – High fashion Designer, Stylist, and Freelance Designer. Sources of design inspiration. Indian fashion Designers- Manish Malhothra, Ritu kumar, Ritu berri, Tarun Tahilani, Wendell Rodricks, Abu Jani and Sandeep Khosla, JJ Valaya, Rina Dhaka, Manish Arora, and Rohit Bal.

UNIT - V

Study of International Fashion centers – France, Italy, England , Germany, Canada , New York . Study of International Fashion Brands – Women's Wear, Men's Wear, Kids Wear, Sports Wear, Cosmetics and Accessories. TEXT BOOKS: 1. Elaine stone. 2001. The Dynamics of Fashion. Fair child publications, New York. 2. Gini Stephan Friengs . 1999. Fashion from concept to consumer. [Sixth Edition]. Prentice Hall.

REFERENCE BOOKS:

1. Ellen Diamond. 2007. Fashion Retailing. Pearson Education. INC and Dorling Kinderley Publishing, Delhi.

2. Kitty G, Dickerson. 2005. inside the fashion Business. Pearson Education. INC and Dorling Kinderley Publishing, D

B. Sc. TEXTILE AND FASHION DESIGNING

SEMESTER IV

NON WOVEN & TECHNICAL TEXTILES

Unit – I

Non – woven – Introduction – definition, classification and scope and application of non woven – fibres used-web preparartion, opening, cleaning machine, production of parallel laid web, cross laid and random laid web.

Unit – II

Bonding methods – mechanical, thermal, chemical/ adhesive, melt blown and spun lace techniques. Finishing of bonded fabrics. Fusing –methods of fusing. Braiding – methods of braiding. Netting – methods, lacing.

Unit - III

Technical Textiles – Introduction, definition, scopes & importance and uses. Application of Agro Tech,Build Tech,Cloth Tech, Home Tech, Indu Tech, Medical Tech, Sports Tech, Pack Tech, Mobile Tech, Protect Tech, Geo Tech.

Unit – IV

Medical Tech, Sports Tech, Protective – introduction, general properties and end uses.

Unit – V

Smart & intelligent textiles, Smart – Active smart, passive smart & ultra smart, Intelligent – PCM, SMP, Chromic & conductive materials

Reference: • Non woven bonded fabrics – Lunenscholss J and W Albrocht, Ellis Horwood, London 1985 • Non – Wovens – Arul Dahiya, MG Kamath, Raghavendra R Hedge and Monika Kannadnguli • Geo Textiles – NWM John, Blackir London • Family Clothing – Tate and Glisson, John Wiky and Sons., Illinas, 1963 • Technical Textiles – Anand and A.R. Horracks, Textile Institute

B. Sc. TEXTILE AND FASHION DESIGNING

SEMESTER V

GARMENT QUALITY AND COST CONTROL

Unit I

Basics of Quality Control Definition and Scope of Quality Control – Establishing Merchandising Standards–Establishing Raw Material Quality Control specifications – Quality Control of Raw Material.

Unit II

Quality Control System Establishing Processing quality specification – Training Quality Control Personnel – The Quality Standard Control – Quality Control Inspection, Procedures for processing – Quality control of finished garments – Quality control and Government contacts – Quality Control for Packaging, Warehousing and shipping – Statistical Quality Control, Sampling plans – industry – wide quality standards.

Unit III

Basics of Production control Function of Production control – Production, Analysis – Quality Specifications– Quantitative specifications – Scope of Apparel Manufacturing Activity – Cocoordinating departmentalActivities – Distribution of Documents and Records.

Unit IV

Production Control System Type of Control forms – Basic Production Systems –Principles for Choosinga Production System – Evaluating Production Systems – Flow Process Grids and Charts – Basic Flow Process Grid Construction – Flow Process Grids for Production control

Unit V

Cost Control, Function of Cost Control: Types of Costs and Expenses – Apparel Manufacturing Cost Categories – Sales Cost Control – Purchasing Cost Control – Production Cost Control – Administration cost control – Cost Ratio Policies – the manufacturing Budget – Cash flow Control – Standard CostSheet, Break–Even Charts

REFERENCES:

1. Patty Brown, Janett Rice,-Ready to wear apparel analysis, Prentice Hall,1998.
2. Salinger, Jacob Apparel, ―Manufacturing Analylsis‖, New York, Textile Books Futs, 2001
3. Introduction to Clothing Production Management, A.J. Chuter, Second Edition, Black Well Publishing, Second Edition, 2004.
4. Apparel Merchandising, Robin Mathew, First Edition, Book Enclave Publishing, 2008.
5. Textile Industry Development and Growth, Satish Tiwari, First Edition, Anmol Publications Pvt.Ltd., 2000.

B. Sc. TEXTILE AND FASHION DESIGNING

SEMESTER VI

COMPUTER & TEXTILES IN GARMENT DESIGN

UNIT-1

Introduction to computers –Organization of Computers –Input Unit, Output Unit, Central Processing Unit ,Memory Devices, Working Principles of Printer-Scanner, Digitizer & Plotter.

UNIT -2

Computer Application in Textile Designing- Weaving- Softwares used – Types of woven DesignDobby and Jacquard- Techniques Used. Knitting -Softwares used – Types of knitting. Printing – Creation of Printed Design – Simulation Technique.

UNIT-3

Computer Application in Fashion Designing-Design Creation- Theme Rendering- 3D Modeling Body Scanning-Texture Mapping-Design Studio-Fashion Studio- Fashion Multimedia Concepts.

UNIT-4

Computer Application in Pattern Making- Process involved in Pattern Making Grading-Marker Planning-Laying-Cutting- Labelling-Duplicating. Computerized Sewing Machine.

UNIT-5

Computer Aided Manufacturing – Concepts of Computer Integrated Manufacturing – Definition and Functions of CAD, CAM, CIM, CAA, PDC . Computerized Embroidery Machines. Computerized color Matching System. Brief study of Designing Soft wares used in textile industry.

Reference

1. CAD/CAM computer aided design and manufacture, Groover MP and E.W.Zinimmers, prentic hall, India 1984.

2. Computers in fashion industry, Taylor P, Heinemann publications 1990.

3. Computer aided design and manufacture, Bezant C.E, Ellis Horwood, England,1983.

4. CAD in clothing and textiles, Winfred Aldrich, Blackwel science, 1994.

5. Computer aided drafting and design –concept and application, Veinsinet DO, 1987.

6. Computer Fundamentals – P K Sinha , BPB Publications, Delhi (1992)

7. Pattern Grading for Women's Cloths The Technology of sizing – Gerry Cooklin, Blackwell Science Ltd (1990)

Semester II

ஊடகவியல்

Unit -I	ஊடகம் அறிமுகம் - ஊடக வகைகள் - வரலாறு - ஊடகங்களில் தமிழ் - தொழில் நுட்பம்.
Unit -II	அச்சு ஊடகங்கள் – நாள், வார, மாத இதழ்கள்
Unit -III	வானொலி- தொலைக்காட்சி - தோற்றம் வளர்ச்சி - நிகழ்ச்சிகள் - செய்திப்பிரிவு வானொலி தொடர்கள்- பண்பலை நாடகங்கள் – தொலைக்காட்சித் தொடர்கள்.
Unit -IV	திரைப்படம் – அறிமுகம் - வரலாறு, மேற்குலக கிழக்குலக சினிமாக்கள் - இந்தியக் கலைத் திரைப்படங்கள் - சிறந்த கலைஞர்கள் - தொழில் நுட்ப வல்லுநர்கள் - திரைப்பட விமர்சனம் - இன்றைய படங்கள்.
Unit -V	திரைக்கதை அமைப்பு - திரி ஆக்ட் ஸ்ட்ரக்சர் - திரைக்கதை உள் அமைப்புகள் - எமோசன் என்னும் உணர்ச்சிகள் - காட்சி உருவாக்குதல். இணையம் - வளர்ச்சி - வரலாறு - தமிழ் இணைய இதழ்கள் – தமிழ் இணையக் கல்விக் கழகச் செயல்பாடுகள் - இணைய தளங்கள் - முகநூல் - சமூக வலைதளங்கள் - வலைப்பூக்கள் – மின்னஞ்சல்
Text Books/ Reference Books	
1. இதழியல் கலை - மா. பா. குருசாமி 2. தகவல் தொடர்பியல் - வே. கிருஷ்ணசாமி 3. உலகத் திரைப்படங்கள் - எஸ். ராமகிருஷ்ணன் 4. எம் தமிழர் செய்த படங்கள் - சு.தியோடர் பாஸ்கரன் பார்வை நூல்கள் 5 தமிழ் சினிமாவின் கதை - அறந்தை நாராயணன் 6. உலக சினிமா - செழியன் (மூன்று தொகுதிகள்) 7. திரைக்கதை எழுதுவது எப்படி - சுஜாதா 8. திரைக்கதை எழுதும் கலை - சங்கர்தாஸ்	

B.A.Tamil

Semester-III

மனித உரிமைகள்

பாட நோக்கம்:

தனி மனிதனுடைய உரிமைகள் பற்றி மாணவர்களை அறியச் செய்தல்.

பயன்கள்:

1. மனித உரிமை பற்றிய புரிதல்.
2. மனித உரிமை வரலாறும் பண்புகளும் அறிதல்.
3. மனித உரிமை ஆணையம் குறித்து அறிதல்.
4. ஒவ்வொரு மனிதர்களுக்கும் உள்ள உரிமைகளைத் தெரிந்து கொள்ளுதல்.
5. போட்டித் தேர்வுகளில் பங்கேற்கும் வாய்ப்பினைப் பெறுதல்.

அலகு–1

மனித உரிமைகள் பொருள் விளக்கம் – இயல்பும் தன்மைகளும் – மனித உரிமைக் கோட்பாடுகள் – மனித உரிமைகளின் வகைகள்.

அலகு–2

மனித உரிமைகளின் வரலாறும் பண்புகளும் – பன்னாட்டு மனித உரிமைகள் பிரகடனம் – வாழ்வியல் மற்றும் அரசியல் உரிமைகள் சார்ந்த பன்னாட்டு உடன்படிக்கை – பொருளாதார, சமூக மற்றும் கலாச்சார உரிமைகள் பற்றிய பன்னாட்டு உடன்படிக்கை.

அலகு–3

தேசிய மனித உரிமைகள் ஆணையம் – மாநில மனித உரிமைகள் ஆணையம் அமைப்பும் செயல்பாடுகளும் – கைது, வாரண்ட் விளக்கம் – கைது செய்யப்பட்டவரின் உரிமைகள்.

அலகு–4

குழந்தைகளின் உரிமைகள் – இளங்குற்றவாளிகள், கொத்தடிமைகள் மற்றும் அகதிகளின் உரிமைகள் – இனப்பாகுபாடு ஒழிப்புக்கான பன்னாட்டு உடன்படிக்கை – சித்ரவதை, பிற கொடூரமான மனிதத்தன்மையற்ற நடத்தை மற்றும் தண்டனைகளுக்கு எதிரான உடன்படிக்கை.

அலகு–5

இந்திய மனித உரிமைகள் பாதுகாப்பும் சட்டம் – பெண்ணுரிமை – அகதிகள் உரிமைகள் – மனித உரிமை ஊடகங்களும் சுற்றுச் சூழலும்.

பாடநூல்:

முனைவர் ஜே.தியாகராஜன் – ‘மனித உரிமைகள்’
நிர்மலா பதிப்பகம்
மதுரை–1.

பார்வை நூல்கள்:

1. பேரா. இராஜ.முத்திருளாண்டி – ‘மனித உரிமைகள்’
நியூ செஞ்சுரி புக் ஹவுஸ் (பி) லிட்,
41–பி, சிட்கோ இண்டஸ்டிரியல் எஸ்டேட்,
அம்பத்தூர், சென்னை–600 098.
2. சு.பொ.அகத்தியலிங்கம் – ‘மனித உரிமைகள்’
தமிழ்ப் புத்தகாலயம்,
ப்ளாட் எண்:03/8,
மாசிலாமணி தெரு,
தி.நகர். சென்னை–600 017.
3. வ.நா. விஸ்வநாதன் – ‘மனித உரிமைகள்’
பாவை பப்ளிகேசன்ஸ்
142, ஜானிஜான்கான் சாலை,
இராயப்பேட்டை சென்னை–14.

B.A.Tamil

Semester-IV

அறிவியல் தமிழ்

Unit -I	அறிவியல் தமிழின் தோற்றம் வளர்ச்சி வரலாறு -பலதுறை அறிவியல் தமிழ் நூல்கள் .
Unit -II	தமிழில் அறிவியல் இதழ்கள் சிறுவர்களுக்கான அறிவியல் இதழ்கள் -துளிர் பெரியோருக்கான அறிவியல் இதழ்கள் அறிக அறிவியல் - எல்லோருக்குமான அறிவியல் இதழ் கலைக்கதிர் அறிவியல் தமிழ் ஆய்விதழ் களஞ்சியம் -சிறுவர் இதழ்களில் அறிவியல் செய்திகள் - பொது அறிமுகம்.
Unit -III	அறிவியல் களஞ்சியம் - அறிவியல் கலைச் சொல்லாக்கம் அறிவியல் அகராதிகள் வழி அறிவியல் தமிழ் - அறிவியல் கலைச் சொற்கள்
Unit -IV	அறிவியல் வளர்ச்சியில் தகவல் தொழில்நுட்பத்தின் பங்கு தமிழ்த்திணைபோன்ற மின்புல ஆய்விதழ், குறுந்தகடுகள் வழி தமிழ் ஒலி நாடாக்கள் வழி தமிழ் (Audio tapes)ஒளி நாடாக்கள் வழி தமிழ் (Vidio tapes)இணையதளங்கள் வழி தமிழ் கணிப்பொறித் தகவல்
	பரிமாற்றம்- ஒருங்கிணைந்த தகவல் தொழில்நுட்பம் -கல்விக்கான செயற்கைக்கோள் பயன்பாடு - தொலைக்காட்சி வழிக்கல்வி.
Unit -V	அறிவியல் இயக்கங்கள் - பகுத்தறிவு இயக்கமும் அறிவியல் கண்ணோ அறிவியல் மன்றம் - சுதேசி அறிவியல் இயக்கம் தமிழ் அறிவியல் மன்றங்கள். மும் தமிழ்நாடு தமிழக அறிவியல் பேரவை
Text books	
•	.கிருட்டிணமூர்த்தி சா.உதயசூரியன் (ப.ஆ)அறிவியல் தமிழ் வளர்ச்சிஅனைத்திந்திய அறிவியல் தமிழ்க் கழகம் அறிவியல் தமிழ் தமிழ் வளர்ச்சித் துறை,தமிழ்ப்பல்கலைக் கழகம், தஞ்சாவூர் - 613 005 - 1999.
Reference Books	
•	அறிவியல் களஞ்சியம் - தமிழ்ப்பல்கலைக் கழகம், தஞ்சாவூர்
•	அறிவியல் கலைச்சொல் அகராதி(மூன்று தொகுதிகள்-கலைக்கதிர் வெளியீடு.கோவை
•	அறிவியல் தமிழ் இன்றைய நிலை -இராதா செல்லப்பன்
•	கலைச்சொல்லாக்கம் மங்கள வாத்தியார்
•	ஆன்டோபீட்டர் - தமிழும் கணிப்பொறியும்

B.A.Tamil

Semester-V

மொழி பெயர்ப்பியல்

பாட நோக்கம்:

தமிழில் மொழிபெயர்ப்பு பற்றி அறிவித்தல் – மொழி பெயர்ப்பின் இன்றியமையாமையும் அதன் சிறப்புக்களையும் உணர்த்துதல் – மொழி பெயர்ப்பின் சிக்கல்களையும் அவற்றைக் களைவதற்கான வழிமுறைகளையும் கற்கச் செய்தல். அரசு போட்டித் தேர்வுகளுக்கான தகுதியை அடையச் செய்தல்.

பயன்கள்:

1. மொழி பெயர்ப்பின் முக்கியத்துவம் அறிதல்.
2. கவிதை மொழியாக்கம் குறித்து அறிதல்.
3. புதின மொழியாக்கம் குறித்து அறிதல்.
4. செய்தியியல்களில் மொழியாக்கம் குறித்து அறிதல்.
5. அரசு போட்டித் தேர்வுகளுக்கான தகுதி பெறல்.

அலகு–1

மொழியாக்கக் கொள்கை

அலகு–2

இலக்கிய மொழியாக்கம் – கவிதை மொழியாக்கம்

அலகு–3

தமிழ்க்கவிதையின் ஆங்கில ஆக்கம் – செந்தமிழைச் செழுந்தமிழாய்ச் செய்திடல்.

அலகு–4

புதின மொழியாக்கம்.

அலகு–5

அறிவியல், ஆட்சியியல் – செய்தியியல்களில் மொழியாக்கம்

பாடநூல்கள்:

முனைவர் கா.செல்லப்பன் – மொழியாக்கம் கொள்கைகளும்
செய்முறைகளும்
பதிப்பாசிரியர்
சிற்பி பாலசுப்பிரமணியன்
அருட்செல்வர் டாக்டர் நா.மகாலிங்கம்
மொழிபெயர்ப்பு மையம்,
NPTC-MCET வளாகம், உடுமலைரோடு,
பொள்ளாச்சி–642003.

பார்வை நூல்கள்:

1. கா.பட்டாபிராமன் – ‘மொழிபெயர்ப்பியல்’
உலகத் தமிழாராய்ச்சி நிறுவனம்,
தரமணி, சென்னை.

2. கா.பட்டாபிராமன் – ‘மொழி பெயர்ப்புக்கலை’
நியூ செஞ்சுரி புக் ஹவுஸ் (பி) லிட்
41, பி, சிட்கோ இண்டஸ்டிரியல் எஸ்டேட்,
அம்பத்தூர், சென்னை–600 098.

3. மு.வளர்மதி – ‘மொழிபெயர்ப்புக்கலை’
திருமகள் நிலையம்,
தியாகராயநகர், சென்னை–600 017.

B.A.Tamil

Semester-VI

தொல்லியல்

பாடநோக்கம்:

மறைந்து போன நாகரிகம் – அகழ்வாராய்ச்சி மூலம் புதை பொருள் கண்டு பிடிப்புகளை மாணவர்களுக்குக் கற்பித்தல்.

பயன்கள்:

1. அகழாய்வு குறித்து அறிந்து கொள்ளுதல்.
2. தொல்லியலின் பயன்களைத் தெரிந்து கொள்ளுதல்.
3. கீழடி அகழாய்வு குறித்து அறிதல்.
4. சங்க கால மக்களின் வாழ்வியலை அகழாய்வு வழி உணர்தல்.
5. போட்டித் தேர்வுகளில் கலந்து கொள்ளும் திறன் பெறுதல்.

அலகு–1

தொல்லியல் பொருள் விளக்கமும் தன்மைகளும் – தொல்லியலின் பிரிவுகளும், வகைகளும் – தொல்லியலின் பயன்கள்– தொல்லியலின் வரலாறு.

அலகு–2

அகழாய்வுப் பணியாளர்கள் – அகழாய்வுக்கான கருவிகள் – அகழாய்வு நெறிமுறைகள் – அகழாய்வு முறைகள் – காலக்கணிப்பு முறைகள் – அகழாய்வும் பிற அறிவியல்களும்.

அலகு–3

இந்திய தொல்லியல் துறை அறிமுகம் – மதுரைத் தொன்மை வரலாறு – மதுரையில் சமணம் – தொல்லியல் கள ஆய்வுகள் – தொல்லியல் அகழாய்வுகள் – கீழடியில் தொல்லியல் அகழாய்வுகள் – கீழடி அகழாய்வின் முதன்மைத் தரவுகள்.

அலகு–4

தமிழகத்தில் நிலவிய சங்க கால பண்பாட்டு வரலாற்றாய்வில் ஒரு திருப்புமுனை –2600 ஆண்டுகள் பழமை வாய்ந்த கீழடி பண்பாடு – கட்டுமானப் பொருட்களின் பகுப்பாய்வு – கட்டடத் தொழில் நுட்பம் – தமிழ் பிராமி – சங்க கால மக்களின் எழுத்தறிவு.

அலகு–5

கைவினைத் தொழில்கள் – நெசவு – வாழ்க்கைமுறை – அணிகலன்கள் – விளையாட்டு மற்றும் பொழுதுபோக்குகள் – வணிகம் – சுடுமண் உருவங்கள்.

பாடநூல்:

முனைவர் கே.தியாகராயன் – ‘தொல்லியல்’
பாவை பதிப்பகம்
37.சி வடக்காணி மூல வீதி, மதுரை–1.

தமிழ்நாடு தொல்லியல் துறை – கீழடி

B.SC. PHYSICS

SEMESTER-II

Space Science

UNIT I:

Universe Planets - interior planets - exterior planets - crust, mantle and core of the earth - different - region of earth's atmosphere - rotation of the earth - magnetosphere - Van Allen belts - Aurora.

UNIT II:

Comets, Meteors, Asteroids Composition and structure of comets - periodic comets – salient features of asteroids, meteors and its use UNIT III : Sun Structure of photosphere, chromosphere, corona - sunspots – solar flares - solar prominences - solar piages - satellites of planets -structure, phases and their features of moon.

UNIT IV :

Stars Constellations - binary stars - their origin and types star clusters –globular clusters - types of variable stars - types of galaxies.

UNIT V :

Origin of Universe Big bang theory - pulsating theory - steady state theory – composition of universe expansion

REFERENCE :

1. K.D. Abyankar, Astrophysics of the solar system, University press, India (1999)
2. BaidyanathBasu, Sudhindra Nath Biswas And Tanuka Chattopadhyay, An Introduction To Astrophysics, Prentice Hall OfIndia, New Delhi (2010)
3. Prof. P.Devadas, The fascinatingAstronomy, Devadas Telescopies, Chennai
4. R.P. Singhal, Elements of Space Physics, PHI, (2009)

B.SC. PHYSICS

SEMESTER-III

CAREER COMPETENCY SKILLS - I

UNIT I RESUME FORMATS

Biodata – Resume – Curriculum vitae (CV) - Tips to create an effective resume – Resume format for various professions.

UNIT II GROUP DISCUSSION

Group discussion – Definition – Types of group discussion – Importance – Elements of group discussion – Skills for group discussion – preparation of group discussion.

UNIT III TECHNICAL APTITUDE

Basic aptitudes – Steps to prepare technical test – Critical reasoning skills – Common aptitude types - technical aptitudes for different professions

UNIT IV INTERVIEW SKILLS

Types of Interviews – Best skills for an Interview – Preparation for an Interview.

UNIT V PERSONALITY

Four personality types – Personality traits – Body language – Dress code – Ways to improve personality.

BOOK FOR STUDY AND REFERENCE

1. Ajai B. Kher, Group discussion, Vohra Publisher, Allahabad, India,
2. Ela Kashyap Sharma, Technical Aptitude for Interviews, PHI Learning Private Limited, Delhi, 2015
3. T.S. Jain and Gupta, UPKAR'S Interviews and group discussions, E-Books

B.SC. PHYSICS

SEMESTER-IV

CAREER COMPETENCY SKILLS – II

UNIT I

Operations on numbers – H.C.F & L.C.M of numbers – Decimal fractions – Simplifications - Square roots and Cube roots – Averages.

UNIT II

Problems of ages - Surds & Indices – Percentage – Profit & Loss – Ratio & Proportions – Time & Work – Pipes & Cisterns.

UNIT III

Time & Distance - Problems on Trains - Boats & Streams – Allegation & Mixtures – Logarithms – Simple interest & Compound interest.

UNIT IV

Area, Volumes and Surface areas – Calendar – Clocks – permutations & combinations – probability – Heights & Distances.

UNIT V

Logical Reasoning – Puzzles – Dice – Visual Reasoning – Alphanumeric Reasoning – Number series.

B.SC. PHYSICS

SEMESTER-V

INSTRUMENTATION

UNIT I PERFORMANCE CHARACTERISTICS OF AN INSTRUMENTATION SYSTEM

Introduction – System configuration – Problem Analysis – Basic Characteristics of measuring devices – Calibration - Generalized measurement – Zero-order system – Second order system – Dead time element – Specification and testing of dynamic response.

UNIT II SENSORS AND TRANSDUCERS

Basic principles of sensors - pressure sensor (Strain Gauge) – IR sensor - Characteristics of transducers - variable resistance transducer -variable capacitance transducer – Voltage and current transducer.

UNIT III DIGITAL INSTRUMENTS

Introduction – Digital Multimeter – Digital panel meter – Digital frequency meter – Digital measurement of time – Universal counter – Digital tachometer – Digital PH meter.

UNIT IV MEDICAL INSTRUMENTATION

ECG - EEG - Lead systems and recording methods -typical waveforms - X-ray machine – Digital Stethoscope - Computer tomography - MRI – Ultrasonography - Thermography - Pacemakers –Ventilators - Dialyzers.

UNIT V GAS ANALYSERS AND POLLUTION MONITORING INSTRUMENTS

Types of gas analysers - Oxygen, NO_2 and H_2S types - IR analyser - Air pollution standardsAir pollution detector - Dust and smoke detector- Radiation monitoring instruments –Area radiation dosimeter- personal radiation dosimeter - radiation warning alarm.

BOOKS FOR STUDY AND REFERENCE

1. E.A.Doebelin, Measurement Systems-Applications and Design, Tata McGraw Hill, (1990)
2. C S Rangan, G R Sharma, V.S.V. Mani, Instrumentation Devices and Systems, Second Edition, Tata McGraw Hill, (2011)
3. R.S.Khandpur, Handbook of Analytical Instruments, Tata McGraw Hill (2003).
4. D.Patranabis, Sensors and Transducers, Prentice Hall of India, (1999)
5. M. Arumugam, Bio-medical Instrumentation, Anuradha Agencies, (2002)
6. John G. Webster, Medical Instrumentation: Application and Design, John Wiley &Sons Inc (2009)
7. John P. Bentley Principles of Measurement Systems, Third Edition, Pearson Education, (2000)

B.Sc., BIOCHEMISTRY

SEMESTER – II

GOOD LABORATORY PRACTICES

UNIT – I

Fundamentals of GLP, Overview of OECD - GLP principles and WHO GLP in brief.

UNIT – II

General Science Laboratory facilities, glass wares, chemicals and common science lab equipments.

UNIT – III

Safety practice in the laboratory - Laboratory safety rules – general good laboratory safety practices, personnel protection, chemical safety instructions, Do's and Don'ts in laboratory, Laboratory safety symbols.

UNIT – IV

History of biosafety, Risk assessment, Biosafety levels, Personal protective equipment, Disinfection, decontamination, and sterilization, Regulatory compliance, Laboratory security and emergency response.

UNIT – V

Collection of existing information and Inspection of the workplace for safety hazards**,** Identification of health hazards associated with emergency and non-routine situations**,** Characterization and control measures.

REFERENCES

1. Handbook Good Laboratory Practices-World health organization (WHO)

2. Life science protocol manual (2018)-DBT star college scheme

3. Guidelines for good laboratory practices-Indian council of medical research, New Delhi (2008)

B.Sc., BIOCHEMISTRY

SEMESTER – III

HEALTH AND HYGIENE

UNIT - I

Introduction: Scope and importance of public health. Concept of energy, Calories, daily food intake, balanced diet and diet control, malnutrition and over nutrition,

UNIT - II

Individual Health parameters, Determinants of health and key health indicators. Ill effects of smoking, alcoholism and drug abuse. Stress reduction and management.

UNIT - III

Health Education: - principles and strategies. Health Policy and Health Organizations of India National Health Mission, Women and Child Care Schemes.

UNIT - IV

Hygiene: - Definition, scope and importance of hygiene. Personal, social, medical and culinary hygiene, WASH (Water, Sanitation and Hygiene) programmes.

UNIT - V

Awareness programs for Public Health and Hygiene: - awareness on control prevention of epidemics and pandemics. Mobile Apps of Government of India.

REFERENCES:

- Jatin V. Modi and Renjith S. Chawan, Essentials of Public Health and Sanitation.
- Mary-jane Schneider, Introduction to Public Health (4thEdn,) Joes &Barelet Publications.
- Swaminathan S, Principles of Nutrition and Dietetics.

B.Sc., BIOCHEMISTRY

SEMESTER – IV

LIFESTYLE DISEASES

UNIT I:

Lifestyle diseases: Definition, Factors contributing to lifestyle diseases – Physical in activity, Poor food habits, disturbed biological clock, sleep deprivation.

UNIT II:

Top lifestyle diseases, Impact of Lifestyle diseases on family, society and economy of country.

UNIT III:

Causes, symptoms**,** types, preventive measures and treatment of Obesity, cardiovascular diseases, diabetes and cancer.

UNIT IV:

Women's lifestyle diseases: Polycystic Ovarian Disease, Infertility, Breast and cervical cancer and Osteoporosis.

UNIT V:

Prevention of lifestyle diseases: Balanced diet, sufficient intake of water, physical activity, sleep-wake cycle, stress management and meditation.

REFERENCES

1. Steyn K, Lifestyle and related risk factors for chronic diseases
2. Willett WC,Prevention of chronic disease by means of diet and lifestyle.
3. Kumar M & R. Kumar,.Guide to prevention of lifestyle diseases. Deep & Deep publications

B.Sc., BIOCHEMISTRY

SEMESTER – V

NUTRITIONAL BIOCHEMISTRY

UNIT – I

Nutritional profile of principal foods: Cereals, pulses, vegetables, fruits, nuts, oil seeds, animal foods, milk and milk products, egg, fish, meat, drinks and spices. Role of dietary carbohydrates, proteins, fats, fiber and antioxidants.

UNIT – II

Dietary requirements: Balanced diet, Recommended dietary allowances for infants, children, adolescent, pregnant, lactating women. Measurement of energy expenditure, respiratory quotients of food stuffs, specific dynamic action.BMR:- Measurement of BMR and factors influencing BMR.

UNIT-III

Dietary protein: Biological value of proteins and nitrogen balance. Essential and non-essentials aminoacids. Protein energy malnutrition – aetiology, management of kwashiorkor and marasmus.

UNIT – IV

Minerals: Nutritional significance of dietary macro minerals (Ca, P, Mg, S, K, Na, Cl) and trace minerals(Iron, Iodine, Zinc and copper). Disorders related to the deficiency of minerals.

UNIT- V

Nutrition and body defenses: Drug - nutrient interaction, nutritional therapy for inborn errors of metebolism, role of diet and nutrition in the prevention and treatment of diseases:- Diabetes mellitus, Jaundice, Peptic ulcer, blood pressure, cardiovascular diseases

REFERENCES

1. Human nutrition by B. Srilakshmi, New age International Pvt Ltd, 2009
2. Human nutrition and dietetics, S. Davidson and J.R. Passmore.
3. Human nutrition and dietetics, IS Garraw, WPT James, 10th edition
4. Modern nutrition in health and diseases, Whol and Good hart.
5. Mechanism and theory in food chemistry, DWS Wong, CBS New Delhi, 1996.

B.Sc., BIOCHEMISTRY

SEMESTER – VI

BIOCHEMISTRY AND HEALTH

UNIT – I

Carbohydrate: Sources of carbohydrates, importance of carbohydrates in living organisms, Normal level of sugar in blood, factors influencing blood glucose, renal threshold value, Diabetes mellitus:- Types, Complications, management-monitoring methods of blood glucose level and GTT.

UNIT – II

Proteins: Sources of proteins and amino acids, essential and non-essential aminoacids, Importance of proteins in living organisms, normal level of serum proteins, protein deficiency disorders:-Kwashiorkor and Marasmus.

UNIT – III

Lipids: Sources of lipids, essential and non-essential fatty acids, importance of fats and lipids in living organism, role of lipoproteins in human body. Normal levels of cholesterol and TG. Disorders:- Hypertension and Atherosclerosis .

UNIT – IV

Vitamins: Sources, RDA, importance, deficiency disorders of water soluble and fat soluble vitamins inhumans.

UNIT – V

Minerals: - Sources, Biological importance and deficiency disorders of Na, K, Ca, Mg, P, Fe, Zn, Se andIodine in humans.

REFERENCES

1. Textbook of medical physiology by C. Guyton, John E. Hall.—12th ed, 2011, Saunders, an imprint ofElsevier Inc.
2. Medical Biochemistry by MN Chatterjee, Rana Shinde, 8th edition, 2013, Jaypee publications.
3. Deb.A.C., Fundamentals of Biochemistry, 10 th edition, 2011, New central book agency Pvt Ltd.
4. Biochemistry (2013) by U.Satyanarayana and U. Chakrapani, 4th edition, Elsevier.

<table>
<tr><td colspan="2">Title of the Course</td><td colspan="7">MATHEMATICAL APTITUDE – I</td></tr>
<tr><td colspan="2">Paper Number</td><td colspan="7">SKILL ENHANCEMENT COURSE SEC-01
(NAAN MUTHALVAN Arrear – Semester II)</td></tr>
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<tr><td colspan="2">Pre- requisite</td><td colspan="7">12th Standard Mathematics</td></tr>
<tr><td colspan="2">Objective of the Course</td><td colspan="7">• To prepare the students for competitive examinations.</td></tr>
<tr><td colspan="2" rowspan="5">Course Outline</td><td colspan="7">UNIT – I
Operations on Numbers.</td></tr>
<tr><td colspan="7">UNIT – II
HCF and LCM.</td></tr>
<tr><td colspan="7">UNIT – III
Decimal Fractions.</td></tr>
<tr><td colspan="7">UNIT – IV
Square Roots and Cube Roots.</td></tr>
<tr><td colspan="7">UNIT – V
Average.</td></tr>
<tr><td colspan="2">Skills acquired from this course</td><td colspan="7">Knowledge, Problem Solving, Analytical ability, Professional Competency, Professional Communication and Transferrable Skill.</td></tr>
<tr><td colspan="2">Recommended Text</td><td colspan="7">R.S. Aggarwal, Quantitative Aptitude for Competitive Examinations, S.Chand co Ltd., 152. Anna Salai, Chennai,2010</td></tr>
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B.Sc. Mathematics
Semester-III

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<tr><td colspan="2">Title of the Course</td><td colspan="7">MATHEMATICAL APTITUDE – II</td></tr>
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(NAAN MUTHALVAN Arrear – Semester III)</td></tr>
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<tr><td>Semester</td><td>III</td><td colspan="3"></td></tr>
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<tr><td colspan="2">Objective of the Course</td><td colspan="7">• To prepare the students for competitive examinations.</td></tr>
<tr><td colspan="2" rowspan="5">Course Outline</td><td colspan="7">UNIT – I
Surds and Indices.</td></tr>
<tr><td colspan="7">UNIT – II
Logarithms.</td></tr>
<tr><td colspan="7">UNIT – III
Permutations and Combinations.</td></tr>
<tr><td colspan="7">UNIT – IV
Probability.</td></tr>
<tr><td colspan="7">UNIT – V
Tabulation.</td></tr>
<tr><td colspan="2">Skills acquired from this course</td><td colspan="7">Knowledge, Problem Solving, Analytical ability, Professional Competency, Professional Communication and Transferrable Skill.</td></tr>
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(NAAN MUTHALVAN Arrear – Semester IV)</td></tr>
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<tr><td colspan="2" rowspan="5">Course Outline</td><td colspan="6">UNIT – I
Chain Rule – Time and Work.</td></tr>
<tr><td colspan="6">UNIT – II
Time and Distance.</td></tr>
<tr><td colspan="6">UNIT – III
Problems on Trains.</td></tr>
<tr><td colspan="6">UNIT – IV
Boats and Streams.</td></tr>
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Calendar and Clocks.</td></tr>
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B.Sc. Mathematics
Semester-V

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<tr><td colspan="2">Paper Number</td><td colspan="6">SKILL ENHANCEMENT COURSE SEC-04
(NAAN MUTHALVAN Arrear – Semester V)</td></tr>
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<tr><td colspan="2" rowspan="5">Course Outline</td><td colspan="6">UNIT – I
Problems on Ages.</td></tr>
<tr><td colspan="6">UNIT – II
Ratio and Proportion.</td></tr>
<tr><td colspan="6">UNIT – III
Simple Interest.</td></tr>
<tr><td colspan="6">UNIT – IV
Compound Interest</td></tr>
<tr><td colspan="6">UNIT – V
Odd man out and Series.</td></tr>
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Percentage.</td></tr>
<tr><td colspan="6">UNIT – II
Profit and Loss.</td></tr>
<tr><td colspan="6">UNIT – III
Partnership.</td></tr>
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True Discount.</td></tr>
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Bankers Discount.</td></tr>
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B.Sc. BIOTECHNOLOGY

SEMESTER II

BIOTECHNOLOGY FOR SOCIETY

UNIT I

Sericulture. Aquaculture, Apiculture. Vermiculture. Mushroom technology.

UNIT II

Biofertilizers. Biopesticides. Biorepellants. Pest control and management. Biomass (SCP). Bioplastics. Bioweapons.

UNIT III

Bio dyes, Bio fuels – Biodiesel & Biogas. Bioindicators. Biodegradation- Role of GMO's.

UNIT IV

Production of Penicillin, Recombinant Vaccines (HBV). Recombinant Insulin. Plantibodies.Vaccines in animal cells, Gene therapy.

UNIT V

Transgenic animals and their applications- Mice, Sheep and Fish. Transgenic plants and their applications- BT Cotton, Flavr-Savr tomato and Golden rice.

REFERENCES:

1. Animal Biotechnology ,M .M. Ranga, (2000) , Agrobios (India),

2. Introduction to Plant Biotechnology Chawla,(2003) (2nd edn) Oxford and IBH publishers

3. Biotechnology, Satyanarayana. U, (2008), Books and Allied (p) Ltd.

4. Industrial Microbiology – A.H. Patel, MacMillan Publishers, 2005

5. A text book of Biotechnology, R. C. Dubey, (2001), Rajendra Printer.New Delhi.

6. Environmental Biotechnology. A.K.Chatterji. Third edition. PHI Learning Pvt Ltd. New Delhi.

B.Sc. BIOTECHNOLOGY

SEMESTER III

PLANT MOLECULAR BIOLOGY

UNIT I

Genome organization. Nucleus, plastid and mitochondrial genome organization.Transposons in plants, transposable elements and transgenesis.

UNIT II

Regulation of gene expression in plants – Nuclear genes, Organellar genes(plastid and mitochondrial genes), Signaling mechanism in gene regulation.

UNIT III

Molecular biology of N2 fixation, nif gene rearrangement and N2 fixation in cyanophytes, nif gene transfer in Chloroplast. Agrobacterium and crown gall tumor formation.

UNIT IV

Plant gene expression cassettes – selectable markers, reporter genes and promoters in plant vectors. Direct transformation of plant – physical methods.

UNIT V

Molecular marker techniques - RFLP, RAPD, AFLP and QTL. Virus resistance, delayed fruit ripening, production of Plantibodies , Cytoplasmic male sterility.

REFERENCES:

1. Plant biochemistry and Molecular biology,**Lea,P.J & Leegood**;1993 John Wiley & sons.
2. Plant virology. **Mathew, R.E, 1991**, Edition 3, Academic press.
3. Molecular genetics of Photosynthesis**, Anderson,B Salter,H,**1996., IRL press, Oxford.
4. A Text Book of Biotechnology. **R.C. Dubey**. S.Chand& Co Ltd, New Delhi.
5. Biotechnology, **Satyanarayana**. U, 2008, Books and Allied (p) Ltd.

B.Sc. BIOTECHNOLOGY

SEMESTER IV

BIOPHYSICS AND BIOINSTRUMENTATION

UNIT-I

Beer Lambert's law - Colorimeter and its applications. Spectrophotometer-Principle and its applicationsTypes of Spectrophotometer- UV, visible, Infrared Spectrophotometer.

UNIT-II

Electrophoresis - Principle and its applications - Types of electrophoresis- Agarose Gel, SDS-PAGE and 2 D Gel, Blotting –Southern, Northern, Western & Immuno blotting. Gel-Documentation.

UNIT-III

Imaging techniques -EEG, ECG, CT SCAN, MRI SCAN, X-RAY, EMG, NMR, PET.

UNIT-IV

Centrifuge - Principle and its applications - Types of Centrifuge, Chromatograpy - Principle and its applications, Types- Paper, TLC, Column, Affinity, Ion-exchange, HPLC, GC-MS.

UNIT –V

Biosensors- Principle and its applications- Electrochemical, Thermometric, Potentiometric-Optical, Piezo-electric and Amperometric Biosensors. GM Counter, Scintillation Counter, Autoradiography, Flow Cytometry. Care and Maintanence of Laboratory Instruments – Autoclave, Incubator and Hot air oven.

REFERENCES:

1.H.V. Volkones., General Biophysics, Vol I&II

2.Upadhyay., Biophysical Chemistry-, Himalaya Publication, Edition III

3.S.Mahesh., 2003 Biophysics New Age International Private Ltd.

4.Ghatak, K.L., 2003. Techniques and Methods In Biology. PHI Learning Private Ltd. New Delhi

5.Zubay.G.L,, 1993. Biochemistry, 4thEdi. WmC. Brown Publishers.

B.Sc. BIOTECHNOLOGY

SEMESTER V

ENDOCRINOLOGY

UNIT I : Hormones: definition, classification, biosynthesis and degradation. Mechanism of hormone action, class I and II hormone receptors, steroids. Feedback regulation of hormones.

UNIT II: Hypothalamus and pituitary hormones: Hypothalamic releasing factors vasopressin, oxytocin; biosynthesis, secretion, transport, regulation and biological effects of growth hormones. FSH, LH, TSH, ACTH and prolactin.

UNIT III: Thyroid hormones: biosynthesis, secretion, transport, regulation and biological actions. Hypo and hyper thyroidism, antithyroid agents, role of parathyroid hormones, calcitriol, calcium and phosphorous homeostasis. Hypo and hyperparathyroidism.

UNIT IV: Pancreatic hormones: Islets of Langerhans, cell types. Insulin and glucagon: biosynthesis, mechanism of action and biological effects. Hormonal action of somatostatin and pancreatic polypeptide. Adrenal hormones: biosynthesis, secretion, transport, mechanism of action and excretion of glucocorticoids, mineralocorticoids, adrenal medullary hormones – epinephrine and nor epinephrine, steroid hormones – androgens and estrogens

UNIT V: Structure and function of the brain, central nervous system, peripheral and autonomic nervous system. Cells of nervous system: Neurons, Glial cells, Oligoendocytes and Schwann cells. Neurotransmitters – synthesis, storage, release, uptake, degradation and action of neurotransmitters. Acetyl choline, GABA serotonin, dopamine, glutamate, aspartate, nitrous oxide. Mechanism of action of anesthetics, analgesics, hallucinogens, depressants, stimulants and toxins on the nervous system, addiction and drug abuse.

REFERENCE

1. Donald Voet , Judith G. Voet , Charlott W. Pratt. Fundamentals of Biochemistry, upgrade edition. John Willey & Sons. Inc,

2. Edward Staunton West, Wilbert R. Todd, Howard S. Mason, John T. Van Bruggen,1996.Textbook of Biochemistry, 4 th edition , Oxford & IBH publising Co.Pvt.Ltd.,

B.Sc. BIOTECHNOLOGY

SEMESTER VI

PROTEOMICS AND GENOMICS

UNIT I

Studying the Genome: Genetic Mapping-Markers for Genetic Mapping; RFLP, SSLP - VNTR's, STR's, SNP's; Physical Mapping - In situ hybridization, Sequence Tagged Sites Mapping. DNA data bases.

UNIT II

Determination of nucleotide sequence: Chemical degradation method, Sanger's dideoxynucleotide synthetic method. Direct DNA sequencing using PCR, Sequencing by conventional shotgun method, Whole genome shot gun method, Clone contig method.

UNIT III

ORF scanning – Codon bias, Exon-Intron boundaries - Exon trapping, CpG island, Gene location – Southern and Northern blotting hybridization, Zoo blotting. Studying a transcriptome – Microarray or chip analysis, SAGE.

UNIT IV

Proteomics - ID–SDS-PAGE, 2D-PAGE. Detection and quantitation of proteins in gels. Protein staining techniques. Affinity purification of proteins.

UNIT V

Basics of Mass Spectroscopy- MALDI-TOF and ESI and their applications in proteomics. Tandem MS/MS spectrometry.

REFERENCES:

1. Ajoy Paul., 2011. Text Book of Genetics- from Genes to Genomes- Books and Allied (P) Ltd, Kolkata. Third Edition,.

2. Keith Wilson and john Walker, 2010. Principles and techniques of practical biochemistry-, Cambridge University Press, 7th edition.

3. U.Sathayanarayana, Biotechnology, Books and allied (p) ltd., India, 2008.

4. Hubert Rehn, 2006 Protein Biochemistry and Proteomics -, Acadamic press.

5. Liebler,Humana W., 2002. Introduction to proteomics: Tools for new Biology CBS pub.

B.A.,HISTORY

SEMESTER–II

PRINCIPLES OF PUBLIC ADMINISTRATION

UNIT - I

Nature, Scope and Importance of Public Administration–Different Approaches – Relations with Other Social Sciences–Public and Private Administration.

UNIT – II

Organization–Theories: Classical Theory –Human Relations Theory –Principles of Organization: Hierarchy–Span of Control–Unity of Command–Centralization Vs Decentralization – Co-ordination, Delegation – Field headquarters relationship.

UNIT - III

Chief Executive–Line, Staff and Auxiliary Agencies–Departments–Public Corporations–Independent Regulatory Commissions.

UNIT - IV

Personnel Administration –Recruitment and Training–Classification of Services–Promotion– Retirement–Association.

UNIT – V

Financial Administration –Budget and its Principles –Process of Budget Making in India – Parliamentary Control Over Finances–Accounting and Auditing.

Text Books:

1.Vishnoo Bhagwan & Vidya Bhushan–Public Administration, S.Chand & Co. New Delhi, 2006.

2. Chandran E. Public Administration, Cosmos Bookhive (P) Ltd., Gurgaon, 1999.

3. G. Venkatesan, Public Administration, V.C. Publications, Rajapalayam, 2009 Books for

Reference: 1. Avasthi A. and Maheswari S.R., Public Administration, Lakshmi Narain Agarwal, Agra 1996. 2. Bidyut Chakrabarty and Prakash Chand –Public Administration in a Globalizing World, Sage Publications, New Delhi, 2012. 3. Felix A., Nigro & Lloyd G.Nigro –Modern Public Administration, Harper and Row, London, 1973. 4. Pandey A.K., Handbook of Public Administration, Dominant pub, New Delhi, 2005. 5. Rumki Basu, Public Administration: Concept and Theories. New Delhi: Sterling Publications, 1990.

B.A.,HISTORY

SEMESTER–III

JOURNALISM

UNIT-I

Journalism - Introduction to Journalism- Definitions – History of Journalism – Fourth Estate -Journalismandit‟s growth 1876 -1947 – Journalism in Tamil Nadu.

UNIT-II

Reporting–Meaning-–KindsofNews–FunctionsofReporter– ImportantNewsAgenciesin India – Asian News International –Hindustan Samachar – Indo Asian News Service – PressTrustofIndia–Samachar Bharathi–UnitedNews ofIndia.

UNIT-III

Editing – Macro Editing- Micro Editing – Kinds and Techniques of Editing - Functions ofEditor – Role of Sub Editors - Page make up – Headlines – Editorial Board – Letters to theEditor.

UNIT-IV

Printing – Kinds of Printing – News Paper – Books – Magazines – Structure Function –Advertisement.

UNIT-V

Role ofPressin NationalMovement–MarathiPress–PressandtheIndianNationalCongress – RevolutionaryMovementsandThePress.

References:

1. A.M. Samy, Origin and Growth of Tamil Press, (Tamil), Navamani Pathipagam,Chennai,1987.
2. A.N.Ahuja,TheoryandPracticeofJournalism,SurjeetPublication,Delhi,1984.
3. DavidWainWright,JournalismMadeSimple,Rupa&Co,London,1981.
4. K.Kulathuran,TamilPress(Tamil),JeyakumariStore,Nagarcoil,1975.
5. M.P.Gurusamy,Journalism,(Tamil),Guru-ThenmozhiPublication,Dindigul,2009.
6. Mehta.D.S.-Mass-Communication and JournalisminIndia
7. RangaswamyParthasarathy-Journalismin India.

B.A.,HISTORY

SEMESTER–IV

GENERAL SCINCE

UNIT – I

Origin of Universe – Stars – Solar system – Planets – Origin of life – Theory of Evolution – Earth System – Spheres – Resources – Oceans.

UNIT – II

Classification of Fuels – Biomass, Fossil Fuels – Energy Crisis today – Conventional and NonConventional energy – Green House effect.

UNIT – III

Health – Organic diseases – Epidemic and communicable diseases – Health education in India. UNIT – IV Natural disastrous – Nuclear crisis – War Weapons – Biological warfare – Science for peace.

UNIT – V

Major invention of 20th century – Scientists in India – Space programmes and Moon missions in India – Missions of NASA.

Reference Books:

1. H.C. Verma – Concept of f Physics.

2. S.B. Patel – Nuclear Physics.

3. Reddy & Coden – Electronic communication

4. Brijlal N. Subramanian – Properties of matter.

B.A.,HISTORY

SEMESTER–V

GENERAL STUDIES FOR COMPETITIVE EXAMINATIONS

UNIT – I Geography of the Earth – Atmosphere – Soils – Minerals, Crops, Forests, Monsoons – Mountain ranges, Rivers, Nationa Highways, Airports – National Wild-Life Sanctuaries – Tribes of India.

UNIT-II Indian economy – Planning Commission, NDC-New Economic Policy , LPG – Liberalization, Privatisation, Globalisation – Taxes – Currency System.

UNIT –III Indian Polity – President, Parliament – Judiciry – Centre – State relations – State Government – Panchayat raj – Recent Amendments.

UNIT –IV Bio-technology – Nano Technology – Space research – Oceanography – Patetectonic – Natural Disaster Management.

UNIT –V Present Day India and World: Indian States – Census, Flag, Emblem, River Valley Projects – Art and Music – Awards in India and World – Sports – current major events in India and World – India and UNO.

Reference Books:

1. General Studies UPSC and State Civil Services Preliminary Examinations, Unique Publishers.

2. General Knowledge Mannual – Pearson Publications.

3. Government of India , India 2012, India 2020 – Publication Division.

4. Geography of India , „M‟ n „M‟ series.

5. Dutt and Sundaram – Indian Economy.

6. Science and Technology – Spectrum Publications.

7. Civil Services Chronical, Competitive Examinations Monthly Magazine.

B.SC. BOTANY

SEMESTER-II

ORGANIC FARMING

UNIT-I

Soil – physical, chemical properties. Soil pollution – oil, chemicals –fertilizers, pesticide and herbicide, non-degradable solids, biomagnification, consequences of land pollution – damage to soil and crops.

UNIT-II

Organic farming – definition, basic concept of organic farming, integrated plant nutrient supply management, integrated insect pest and disease management, integrated soil and water management. Sustainable agriculture practices-crop rotation, mixed cropping.

UNIT –III

Management of organic wastes and green manures: Farm manures, Composts, Mulches and pest control, importance of organic manure, importance of green manure, crops of green manure, oil cake. Animal based organic manure–cow dung, vermicompost-methods, production and utilization.

UNIT-IV

Biofertilizers–classification, nitrogen fixers–Rhizobium, Cyanobacteria, Azolla and Vesicular Arbuscular Mycorrhiza.

UNIT-V

Recycling of bio-degradable municipal, agricultural and Industrial wastes – biocompost making methods.

Reference Books:

1. Vayas,S.C, Vayas, S and Modi, H.A. 1998. Bio-fertilizers and organic Farming Akta Prakashan, Nadiad.
2. Sathe, T.V.2004. Vermiculture and Organic Farming. Daya publishers.
3 Subha Rao, N.S.2000. Soil Microbiology, Oxford & IBH Publishers, New Delhi.
4. Reddy, S.R. 2019. Fundamentals of Agronomy Kalyani Publications, Uttar Pradesh
5. Tolanur, S. 2018. Fundamentals of Soil Science IIndEdition , CBS Publishers , New DelhI

B.SC. BOTANY

SEMESTER-III

Fermentation Technology

UNIT-I

Preparation of microbial culture, Preparation and sterilization of fermentation media. Isolation and improvement of industrially important microorganisms.

UNIT-II

Maintenance and preservation of microorganisms, Metabolic regulations and overproduction of metabolites. Kinetics of microbial growth and product formation.

UNIT-III

Scope and opportunities of fermentation technology. Principles of fermentation: Submerged, solid state, batch, fed-batch and continuous culture.

UNIT-IV

Fermentative production of vinegar, alcohol (ethanol, wine, beer), acids (citric acid and gluconic acid), amino acids (lysine and glutamic acid) and antibiotics (penicillin and streptomycin).

UNIT-V

Microbial production of enzymes: Amylase and Protease. Bioproduct recovery.

REFERENCE BOOKS

1. Peter F Stanbury, Allan Whitaker, Stephen J Hall. 2016. Principles of Fermentation Technology. Butterworth-Heinemann Press. UK.
2. Peppler, H. J. D. Perlman. 2014. Microbial Technology: Fermentation Technology. Academic Press.
3. T. El-Mansi, C. Bryce, Arnold L. Demain, A.R. Allman. Fermentation Microbiology and Biotechnology. Second Edition. 2006. CRC Press, USA.
4. Hongzhang Chen. Modern Solid State Fermentation: Theory and Practice. 2013. Springer Press, Germany.
5. John E. Smith. Biotechnology. 2009. Cambridge University Press.UK.
6. Celeste M. Todaro, Henry C. Vogel. 2014. Fermentation and Biochemical Engineering Handbook. William Andrew Press. Norwich, NY.
7. Lancini, G. R. Lorenzetti. 2014. Biotechnology of Antibiotics and other Bioactive Microbial Metabolites. Springer publications, Germany.

B.SC. BOTANY

SEMESTER-IV

PLANT TISSUE CULTURE

UNIT I

Introduction to Plant Tissue culture- Historical background.Principle – Polarity, Symmetry and Totipotency, Morphogenetic Centres of origin and organization-differentiation–dedifferentiation and re-differentiation; vascular differentiations. Laboratory organization, Tools and techniques, methods of sterilization. Laboratory contaminants- it‟s control and measures.

UNIT II

Media and Culture Preparation: Role of Micro and Macro utrients, Vitamins and carbon source in tissue culture, Media preparation- pH, Temperature, Solidifying agents.Maintenance of cultures. Environmental Conditions. Explants selection.

UNIT III

Types of culture - Cell, tissue and organ culture – Callus induction, subculture and maintenance. Isolation of single cells, selection and types of cells. Cell suspension cultures -Batch, continuous. Synchronization of suspension culture.

UNIT IV

Somatic hybridization and cybridization. Organogenesis -anther culture and production of haploids- somatic embryogenesis –synthetic seed production-cryopreservation – Gene conservation Bank.

UNIT V

Application of tissues and Cell culture: Micro propagation, Clonal propagation. Production of genetically variable plants – Resistance to herbicides, insecticides, virus and other diseases.

Production of secondary metabolites – Alkaloids.

Text Books

Dubey, R.C., (2001). A text book of biotechnology. S. Chand & Co., New Delhi.Gupta, P.K. (1994). Elements of Biotechnology. Rastogi Publications, Meerut.

Ignacimuthu, S.J.(2003). Plant Biotechnology. Oxford & IBH Publishing, New Delhi. John Jothi Prakash, E. (2005). Outlines of Plant Biotechnology. EmkayPb., New Delhi. Kalyankumar De,(2008). Plant tissue culture.New Central Book Agency, Calcutta.

Sathyanarayana BN and Vergheese DB (2007). Plant tissue culture- Practices and newexperimental protocols, ILK Publ. New Delhi.

References

Bhojwani, S.S. &Razdan, M.K. (2004). Plant Tissue Culture, Read Elsevier India Pvt.Ltd. Dix, P.J. (1990). Plant cell line and selection. VCH Publ.Islam, A.S. (1996). Plant tissue culture. Oxford & IBH Publ.Purohit S.S.(2010). Plant tissue culture , Student edition, Jodhpur.

Hammond, J.C. McGarvey and V. Yusibov, (2009). Plant Biotechnology, SpringerVerlag. New York.

B.SC. BOTANY

SEMESTER-V

ENTREPRENEURIAL OPPORTUNITIES IN BOTANY

UNIT-I INTRODUCTION TO ENTREPRENEURSHIP

Introduction to Entrepreneurship, Scope and identification of new ventures using plant resources, Mechanism of product selection and commercialization, General concept about the Govt. formalities, rules & regulation, Entrepreneurship skill development.

UNIT-II **TOOLS AND TECHNIQUES**

Production of commercially viable plants through Plant tissue culture technique, Production of secondary metabolites, solvents, organic acids, beverages, enzymes, antibiotics.

UNIT-III **NEW VENTURE CREATION**

Production of Biofertilizers, Vermicompost, Establishment of medicinal, herbal and zodiac gardens, Terrace & Kitchen garden, Spirulina and Azolla cultivation, Mushroom cultivation, Bonsai, Bouquet making, Terrarium.

UNIT-IV **PRODUCT DEVELOPMENT AND COMMERCIALIZATION**

Product commercialization and business strategy, Dyes, Cosmetics and Perfumes,Gums, Resins & Latex, Areca Leaf Plates, cups & bags, Jute Products.

UNIT-V **BIO-BUSINESS PLANS, IPR AND BIOETHICS**

Marketing and Business management strategy, Bank loan, Intellectual property rights, Patent laws - Bioethics and current legal issues, Marketing and publicperceptions in product development – Technology licensing and branding concerns.

REFERENCE BOOKS

1.Robin Lowe and Sue Marriott 2009. Enterprise: Entrepreneurship andInnovation: ts, Contexts and Commercialization, Routledge Publisher, London, UK.

2. Peter F.Drucker, 2009. Innovation and Entrepreneurship, Harper Collins Publisher, New York, US.

3. Russell, T. 2012. Nature Guide: Trees: The world in your hands(NatureGuides). Mukherjee D. Gardening in India, Oxford IBH publishing co, NewDelhi.

4. Kumar, N. 1997. Introduction to Horticulture, Rajalakshmi Publications,Nagercoil.

5.Webster, J and Weber, R. 2007. Introduction to Fungi, 3rd Ed. Cambridge University Press, Cambridge

B.SC. BOTANY

SEMESTER-VI

MEDICO ETHNOBOTANY

UNIT I

History. Scope and Importance of Medicinal Plants.Indigenous Medicinal Sciences - Definition and Scope- Ayurveda, Siddha and Unani medicine; History and concept.Classification of natural drugs, (Alphabetical, Morphological, Taxonomical, Chemical and Pharmacological)

UNIT II

Ethnobotany – definition, scope and objectives. Major and minor ethnic groups in South India and their Ethnobotanical and Ethnobiologicalheritage.Ethnomedicines.Role of ethnic groups in conservation of plant genetic resources. Endangered taxa and forestmanagement (participatory forest management).Mythology andconservation of ecosystems.Conservation of selected plant species: sacredgroves.Ethnobotanical field methods.

UNIT III

Role of ethnobotany in modern Medicine-Medico-ethnobotanical sources in India; Significance of the following plants in ethnobotanical practices (along with their habitat and morphology) a) Azadiracthaindicab)Ocimum sanctum c) Vitexnegundo d) Gloriosa superb e) Tribulusterrestrisf) Pongamiapinnatag) Cassia auriculatah) Indigoferatinctoria. Role of ethnobotany in modernmedicine with special example Rauvolfiasepentina, Trichopuszeylanicus, Artemisia, Withania.

UNIT IV

Drugs obtained from leaves - Aloe vera, Gymnema sylvestre, Ocimum sanctum. Drugs Obtained from Flower-Syzygium aromaticum. Drugs from fruits - Coriandrum sativum . Drugs from Seed Strychnosnux vomica Plants and Herbs– Bacopa monnieri, Andrographis paniculata

UNIT V

Collection of crude drugs-Harvesting of crude drugs-Drying of crude drugs (Natural drying and Artificial drying)-Garbling- packing of crude drugs-Storage of crude drug. Marketing. Drug adulteration. Drug evaluation: Chemical and Biological. Phytochemicalinvestigations.Quality control of herbal drugs. Role of NMPB, AYUSH and CDRI

Text Books

Gokhale SB, Kokate, CK and Purohit, AP (2003). Pharmacognosy. Nirali Prakashan, Pune.
Arumugam, K.R. and Murugesh, N (1990). Text book of Pharmacognosy. Sathya Publishers, Chinnalapatti (Tamilnadu) 624 201.

References

Amruth, (1996) The Medicinal plants Magazine (All volumes) Medcinal plant Conservatory Society, Bangalore. Bhattacharjee, SK (2004).
Hand Book of Medicinal plants. Pointer Publishers, Jaipur. Handa SS and Kapoor V K (1993). Pharmacognosy. Vallabh Prakashan, New Delhi.
Harbourne, JB (1998). Phytochemical methods: A Guide to Modern Techniques of Plant Analysis (3rdedition). Chapman and Hill Co., NewYork.
Jain, (2001). Medicinal plants. National Book Trust, New Delhi.

ECONOMICS

SEMESTER – II

ECONOMICS OF INSURANCE

Unit I (NATURE AND IMPORTANCE OF INSURANCE) Definition Origin – Principles and Nature of Insurance Primary and Secondary FunctionsCharacteristics Importance to individual, Business and Society.

Unit II (INSURANCE CONTRACT AND RISK MANAGEMENT Meaning of Contract Insurable Interest Utmost Good Faith Principle of Indemnity and other Principles Risk Management: Definition and types management of Risk through Identification analysis and control.

Unit III (PERSONAL LIFE INSURANCE AND INDUSTRIAL LIFE INSURANCE) Features of Life insurance Proximate Cause Assignment and Nomination Rate of Premium Endowment Policies Accident Benefit Disability Benefits Industrial Life Insurance: Purpose Group Life Insurance Benefits.

Unit IV (PROCEDURE TO BECOME AN INSURANCE AGENT Agency Regulation – Perquisites Characteristics – Disqualification Kinds of agents- Duties & Functions Rights working systems Remuneration of Agents other benefits positions of Insurance agent in india.

Unit V INSURANCE BUSINESS IN INDIA Major Insurance Legislation growth of industry – Agricultural insurance Health insurance Reinsurance Entry of Private Insurance Companies Insurance Act, LIC Act, GIC act, IRDA Act.

TEXTBOOKS:

1. Mishra M.N, Insurance : Principles & Practices.

2. Murthy.A, Elements of Insurance.

REFERENCEBOOKS:

1. Srivatsava D.C &Shashank Srivastava, Indian Insurance Industris Transition & Prospect.

2. Holyoake, Julia & William Weipers, Insurance

3. Sharma.R.S, Insurance, Principles and Practice

4. Arifkhan.M, Theory and Practice of Insurance.

ECONOMICS

SEMESTER – IV

MACRO ECONOMICS

UNIT I MULTIPLIER The concept of Multiplier – Employment and Investment multiplier – Limitations of Multiplier – Leakages of Multiplier Importance of Multiplier – Principles of Acceleration – Interaction between Multiplier and Accelerator (Super Multiplier).

UNIT II GENERAL EQUILIBRIUM General Equilibrium Equilibrium of Commodity Market (IS) and Money Market (LM) – Simultaneous Equilibrium of Commodity and Money Market (IS LM) Changes in General equilibrium (Shifts in IS and LM functions)

UNIT III CLASSICAL AND KEYNESIAN VIEWS ON EMPLOYMENT Wage – Price Flexibility and employment Classical and Keynesian views – Keynes' effect and Pigou effect.

UNIT IV TRADE CYCLE Definition and Phases of Trade Cycle – Control of Trade Cycle – Monetary and NonMonetary theories of Trade Cycle.

UNIT V MACRO ECONOMIC POLICY Objectives – instruments – Monetary Policy – Instruments – Effectiveness of Monetary policy – Fiscal policy – Objectives – Monetary and Fiscal policy mix to control inflation.

TEXT BOOKS:

1. Jinghan. M. L,Macro Economics.

2. Sankaran,S ,Macro Economics.

REFERENCE BOOKS:

1. Edward Shapiro ,Macro Economics.

2. Rana and Varma ,Macro Economics.

3. Cauvery&et.al ,Macro Economics.

4. Vaish, M.C ,Macro Economic theory.

5. Brooman ,Macro Economics.

B.A. ECONOMICS

SEMESTER - VI

WOMEN EMPOWERMENT IN INDIA

UNIT I INTRODUCTION Concept of Empowerment Process and Determination of Women Empowerment Need for Women Empowerment in India Status of women in Modern India.

UNIT II CONCEPTUAL FRAMEWORK Sex and Gender Meaning and Role of Gender Gender S taratification in Historical Perspective Gender Socialiszation Gender Inequality and Gender injustice.

UNIT III WOMEN EMPOWERMENT IN INDIA PROBLEMS AND CHALLENGES Women and Education Women and Health Women and Economy Women and Polity.

UNIT IV LAWS RELATED TO WOMEN EMPOWERMENT IN INDIA Fundamental Rights for Women –Constitutional Provisions Personal laws Need for Uniform Civil code Special laws Labour laws Laws related to Crime s Against Women.

UNIT V INSTITUTIONAL FRAMEWORK FOR WOMEN EMPOWERMENT Role of International Bodies National and State commission for women Role of UGC in Women Empowerment Role of NGO's in Women Empowerment.

REFERENCE BOOKS :

1. Kumar.K, Women Empowerment and Social Change.
2. Gandhi,Anjali,Womens work, health and empowerment.
3. Goel, Aruna, Education and socio-economic perspectives of women and empowerment.
4. Kumar, C. Raj and Chockalingam, K. ed.Human rights, justice, and constitutional Empowerment.
5. Mitra, Joyati, ed. Women and society: equality and empowerment.
6. Rathnaswamy, P. Empowerment for sustainable development.

B.Sc. ZOOLOGY

SEMESTER-II

FISH PRESERVATION AND ECONOMIC IMPORTANCE

UNIT I

Principles and importance of fish preservation – Sun drying, Smoking, Salt curing, Chilling Pickling, Frying and Canning **.**

UNIT II

Application of economic principle of fisheries – Traditional and Economical .Commercial fishing operations in marine fisheries .

UNIT III

Economics of fish markets, marketing and resources managements. Fisheries projects and fish resources .

UNIT IV

Preparation of value added products - fish pickle, fish cutlet, fish waters, fish biscuits, fish fingers –Methods and applications.

UNIT V

Extension education – Objectives and principles –Role of extension in community development .

REFERFNCES:

Freezing preservation of foods. Vol 3. Commercial food freezing operations of fresh foods. Trawlers .D.K. and Others (Edn) VI Connecticut .
Canning technology. Howard, A .J. Churchill, London**.**

B.Sc. ZOOLOGY

SEMESTER-III

Human Health and Hygiene

UNIT I

Introduction to food. Composition and nutritive value of Cereals (Rice, Wheat, Millets, Ragi, Pearl millet). Nutritional deficiency disease – Anaemia, Scurvy

Unit II

Composition and medical value of Ginger, Black pepper and Turmeric. Dental Care and eye care.

Unit III

Communicable diseases – Dengue fever, Malaria, Amoebiasis, Viral fever and AIDS.

Unit IV

Non-communicable diseases – Stroke, Diabetes, Obesity and Cancer.

Unit V

Awareness on Diarrhea, Alcoholism, Smoking, Tobacco chewing, Ulcer and Jaundice.

B.Sc. ZOOLOGY

SEMESTER-IV

WILDLIFE MANAGEMENT

UNIT I

Wildlife management – Definition and Aim – Himalayan mountain system – Peninsular region – Western Ghats.

UNIT II

Wildlife values and benefits – causes of wildlife depletion – Necessary for conservation – Mode of conservation.

UNIT III

Sanctuaries and National parks in India – Wildlife census.

UNIT IV

Indian endangered fauna, Special projects for endangered species (Tiger, Lion and Elephant).

UNIT V

Indian Board of wildlife (IBWL) – Biosphere – Nilgiri, Wildlife Protection act.

REFERENCES:

1. Veer Bala Rastogi and Jayaraj. Animal ecology and distribution of Animals. Kedarnath Ramnath , New Delhi.

2. Saharia V.B. Wildlife in India. Nataraj Publications, Dehradun 2009.

3. Verma P.S. & Agarwal V.K. Environmental Biology, Rastogi Publication, Meerut 2011.

4. Agarwal V.K. Simplified course in B.Sc., Zoology – Ecology and Ethology. 2002.

B.Sc. ZOOLOGY

SEMESTER-V

CLINICAL NUTRITION

UNIT I

Introduction, Definition of nutrition, Principles of Healthy Nutrition, Therapeutic diet – types and qualities. Food as source of nutrients, functions of food, nutrients & energy, Adequate, optimum & good nutrition, malnutrition.

UNIT II

Interrelationship between Nutrition and Health - Visible symptoms of goods health. Weight Management and Eating Disorders - Obesity and Underweight, causes and dietary management. Nutrition and Anaemia.

UNIT III

Routine hospital diets - Regular diet, light diet, full liquid and tube feeding. Diabetes - Types, Symptoms, Causes and dietary management. Hypertension and Cardiovascular Diseases, Symptoms and Dietary management.

UNIT IV

Diseases of gastro Intestinal tract- Gastric and duodenal Ulcer, Diarrhea, Constipation and dietary management. Typhoid, Jaundice, Malaria, dengue, *Chikungunya* – symptoms and dietary management

UNIT V

Feeding infants and children - problems in feeding children in hospitals. Nutrition and diet clinics - Patients checkup and dietary counseling, educating the patient and followup .

REFERENCES:

1. Paul. S. Text book of Bio nutrition curing diseases through diet. CBS Publications.
2. Textbook of Nutrition-Ravinder Chadha & Pulkit Mathur, Orient Blackswan Pvt. Ltd. Telangana.
3. Srilakshmi B .Nutrition Science. New Delhi: New Age International.
4. Clinical Nutrition & Dietetics- F. P. Antia and Philip Abraham, Oxford University Press.
5. Swaminathan S.: Advanced text book on Foods Nutrition Vol. I.

B.Sc. ZOOLOGY

SEMESTER-VI

Vermi Technology

UNIT I

Earth worm classification – Morphology and anatomy. Biology of Lampito maruitii.

UNIT II

Vermicomposting materials and their classification –Feeding habits and food for composting worms .

UNIT III

Veermicomposting methods -Small scale and large scale pit methods, heap method, window method etc., Factors affecting vermicomposting such as Temperature, pH, moisture etc.,

UNIT IV

Vermicomposting in Homes, Maintenance of vermicomposting beds. Harvesting the worms. Earth worm predators, parasites and pathogens.

UNIT V

Application of vermicomposting in Agriculture and Horticultural practices. Advantages of vermicomposting.

REFERENCE:

1. Edwards C.A and Bater, B. 1996. Biology of Earth worms. Chapman and Hall. London. Ismail, S.A. 1997. Vermicology- The Biology of Earthworms. Orient Longman. India. Ranganathan L.S. 2006. Vermibiotechnology from soil health to human health. Agrobios India. Gupta P.K. 2008. Vermicomposting for sustainable agriculture. Agrobios. India.

B. Sc., Statistics

SEMESTER-II

STATISTICAL METHODS AND THEIR APPLICATIONS

Unit – I: Correlation – Types of Correlation – Measures of Correlation – Scatter diagram - Karl Pearson's co-efficient of correlation – Spearman‟s rank correlations co-efficient.

Unit – II: Simple regression analysis – Regression equation, Fitting of Regression equation – Relationship between Regression Co-efficient and Correlation co-efficient.

Unit – III: Index Number - Definition of Index Numbers -Uses –Methods to construction of Simple& Weighted Index numbers – Cost of living index numbers.

Unit – IV: Concept of time series – Component of time series – Methods of measuring trend – Semi average method – Method of moving average – Method of least squares.

Unit – IV: Seasonal variation – Seasonal index – Methods of measuring seasonal index – Simple average method only– Cyclical variation(concept only), Random variation (concept only).

REFERENCE BOOKS:

A.M.GoonM.K.Gupta and d B.Das Gupta (1994), Fundamentals of Statistics V-II, The world press Ltd., Culcutta. Croxton : Applied General Statistics. Gupta S.P, Statistical methods – Sultan Chand. Note: (1) Problems: 80 %; Theory: 20%. This paper has to be taught by a statistics teacher. This paper has to be referred to statistics board for valuation

B. Sc., Statistics

SEMESTER-III

PROBABILITY THEORY

UNIT –I: Concepts of Random experiment – Trial – Sample point – Sample space, Event, Algebra of Events, Mutually Exclusive – Exhaustive events, definition of probability, Classical, Statistical and Axiomatic approach – Properties of Probability, Addition theorem - Conditional probability – Multiplication theorem – Baye‟s theorem – Boole‟s inequality.

UNIT – II: Concept of random variables – Discrete random variable, continuous random variables, probability mass function – Probability density function, Distribution function – Properties of distribution function - Independence of random variable.

UNIT – III: Mathematical expectation of random variables - Properties of mathematical expectation - Moments – Raw moments, central moments – Measures of location and dispersion of a random variable – Tchebychev‟s inequality and its application.

UNIT – IV: Moment generating function of a random variable – their properties and its uses – cumulants – Characteristic functions – Properties of characteristic function – simple examples – Inversion theorem (statement only) - Statements and Application of weak law of large numbers.

UNIT – V: Bivariate distribution – Distribution functions of bivariate random variable and its properties – probability mass and density function, marginal and conditional distributions – Conditional expectation – Concept of regression lines – covariance and correlation

Reference Books

S.C.Gupta and V.K. Kapoor (2007). Fundamentals of Mathematical Statistics, Sultan Chand and Sons Publications, New Delhi. J.N.Kapur and H.C.Saxena (1999). Mathematical Statistics – S.Chand and Company Ltd., New Delhi. Marek. Fisz, (1961). Probability Theory and Mathematical Statistics, John Wiley and Sons. Hogg. R. V. and Allen T. Craig (1998). Introduction to Mathematical Statistics.

B. Sc., Statistics

SEMESTER-IV

Demography

UNIT – I

Demographic Data Meaning - Sources of Demographic data – Civil Registration - Population Census – Registration Method for Demographic Surveys - Vital Registration - Population Register and other Administrative Records - Registration of Population in India.

UNIT – II

Fertility Measurements Crude Birth Rates - General, Specific and Total Fertility Rates - Gross and Net Reproduction Rates and their Interpretation.

UNIT – III

Mortality Measurements Crude Death rate- Specific Death Rate - Standardized Death Rate - Infant Mortality Rate - Maternal Mortality Rate - Case Fertility Rate.

UNIT – IV

Life Table and Migration Description and construction of various columns of a Life table and their Relationships - Uses of Life Table – Migration – Factors Effecting Migration - Gross and Net Migration Rates.

UNIT – V

Population Growth Population Estimation and Projection - Arithmetic, Geometric and Exponential Growth Rates - Logistic curve fitting and its use for graduating population data - Basic ideas of stationary and stable population.

Reference Books:

1. Agarwala, S.N. (1991), Indian Population Problems, Tata McGraw-Hill, New Delhi.

2. Goon A. M. Gupta. M. K and Das Gupta B (1993), Fundamentals of Statistics, World Press, Kolkata.
3. Gupta S. C and Kapoor V. K (2007), Fundamentals of Applied Statistics, Sultan Chand & Sons, New Delhi.

4. Mishra D. E (1982), An Introduction to the Study of Population, South India Publishers, Madras.

5. Hansraj D. R (1981), Fundamentals of Demography, Surjeet publications, New Delhi.

6. Bhende A. A and Karitkar T (1994), Principles of Population Studies, Himalaya, Mumbai.

7. Benjamin B (1975), Demographic Analysis, George Allen and Unwin Limited.

8. Cox P. R (1978), Demography (Fifth Edition), Cambridge University Press.

9. Gibbs J. P (2012), Urban Research Methods, Literary Licensing, LLC ndia. 10. Bogue Donald J (1976), Principles of Demography, John Wiley, New York.

B. Sc., Statistics

SEMESTER-V

REGRESSION ANALYSIS

Unit-I:

Concept of correlation and its types – methods of correlation – Rank Correlation – equal and unequal rank

Unit-II:

Concept of regression – Liner, Non liner regression – Regression line – Regression Coefficient – properties of regression coefficient

Unit-III:

Curve fitting- methods – liner equations – methods of least square.

Unit-IV:

Regression curves – conversion of data into linear form (Power curve, Exponential curves).

Unit-V:

Growth curve fittings – exponential, Gompertz and logistic curves

Reference Books: Fundamentals of Mathematical Statistics, (2000)-S.C. Gupta and V.K. Kapoor. Mathematical Statistics –J.N. Kapoor and H.C. Saxena (1989). Introduction to mathematical Statistics – R.V. Hogg and A.T. Craig (1989). Note: Question paper may be set irrespective of the units

B. Sc., Statistics

SEMESTER-VI

Queueing Theory

UNIT – I:

Queuing system – Kendal‟s terminology – Classification of States - Poisson axioms.

UNIT – II:

Distribution of arrival and departure under Poisson queues.

UNIT – III:

Pure Birth – Death process – transisent state and steady state solution

UNIT – IV:

M/M/1; ∞/FIFO queuing Model – steady state solution – Averages – Little‟s formula

UNIT – V:

M/M/1;N/FIFO queuing model – steady state solution – Averages – Simple problems.

Reference Books:

Kanti Swarup, P.K.Gupta and Man Mohan (1985) : Operations Research, Sultan Chand & Sons, New Delhi. P.K.Gupta and D.S.Hira : Operations Research .S.Chand and Co, Ltd., New Delhi.

Note: Question paper may be set irrespective of the units.

B.Sc. Visual Communication

SEMESTER-IV

Freelance Journalism

UNIT I

Importance of News, Concept of News, Elements of News, Forms of News, Significance of News in Modern Life.

UNIT II

Organs of News Body, Different Forms of News Writing, Familiarisation with News Items of Newspapers, Magazines & News Agencies, Translation of News, Preparing of News , Theories and Practice of News Items.

UNIT III

Change of Information in to a News, Change of News into an Information, Corelation Differentiation and Transformation of News & Information.

UNIT IV

News, sources of news and news value parameters and the basic reportorial and editing skills.

UNIT V

The systems of syndication and stock libraries in India, required tools of the trade and the areas/scope of freelance journalism.

Reference books:

1. M.V.Kamath, The Journalist‟s Handbook, Vikas,1992.

2. Michael Barratt, Making the Most of the Media, Kogan Page,1996.

3. RangaswamiParthasarathy, Journalism in India, Sterling,1989.

4. News writing and Reporting, James, M. Neal, Surjeet Publication.

5. News writing – George A. Hough, Kanishka publishers N. Delhi.

B.Sc. Visual Communication

SEMESTER-V

BROADCASTING

UNIT I

Development of Radio Broadcasting in India – Ownership – Control – Autonomy for Radio – Types of Radio services- Radio as a source of News and entertainment; Types of Radio programmes.

UNIT II

Broadcast News – Value – Radio Language – News Bulletin – News Source for Radio – Reporters, Editors and Agencies – External News Services Interviews – Features – Writing for Radio.

UNIT III

Special Audience Programmes – Rural and Farm Broadcasting – Educational Programmes – Programmes for Children, Women and Youth. Women Welfare – Children Welfa – Health and Family Planning – Rural Development – Urban problems

UNIT IV

Development of Television in India – News Programmes: a) News cast b) News Review – Formats of TV Programmes – Documentary – Special Features – Interviews. TV as a powerful Audio – Visual Media – Commercial and Sponsored Programme – Educational Service.

UNIT V

Broadcasting in the Information age – knowledge society - global media and audiences; New media: digital revolution – Internet TV, satellite TV and DTH; mediaconvergence.

Reference books:

1. Chatterji, P.C, Broadcasting in India, Sage Publications, New Delhi, 1987

2. MehraMassani, Broadcasting and the People, National Book Trust, New Delhi, 1985

3. Luthra, H.R, Indian Broadcasting, Publications Division, New Delhi, 1986

4. Warren K. Agee, Introduction to Mass Communication, 6th Edition, Oxford &IBH, Calcutta

5. Kumar, Keval J, Mass Communication in India, Jaico Publishing House, Bombay, Delhi, Bangalore, Calcutta, Madras 6. Gerald Millerson, Effective TV Production.

Botany-2023-2024

Semester-II

NURSERY AND LANDSCAPING

UNIT-I

Introduction, prospects and scope of nursery and landscaping.

UNIT-II

Methods of Propagation – cutting, layering, grafting, budding, Floriculture – Rose, Chrysanthemum, Jasmine – cultivation.

UNIT-III

Gardening – formal garden, informal garden, vegetable garden, landscaped layoutdesigning – formation and maintenance of lawn.

UNIT-IV

Nursery structures – Green house – Shade house, Mist chamber – Topiary, Bonsaiculture.

UNIT-V

Manures, composting – vermicomposting.

TEXT BOOKS

1. Edmond Musser and Andres, Fundamentals of Horticulture, McGrawHill Book Co. New Delhi.
2. Agrawal, P.K. 1993. Hand Book of Seed Technology, Dept. of Agricultureand Cooperation, National Seed Corporation Ltd., New Delhi.
3. Janick Jules. 1979. Horticultural Science. (3rd Ed.), W.H. Freeman andCo.,San Francisco, USA.
4. Singh, J. 2018. Fundamentals of Horticulture. Kalyani Publishers.
Sharma V. K. 1999. Encyclopaedia of Practical Horticulture, Vol I –IV,Deep And Deep Publ. Pvt. Ltd.

Public Administration

Semester-IV

SOCIAL ISSUES IN INDIA

Unit – I

Social Structure in India – Ancient, Medieval and Modern Society – Reforms and Modern Society

Unit – II

Population Growth – Illiteracy – Unemployment – Poverty – Issue of Social Inclusion and Exclusion – Civil Society and NGOs

Unit – III

Child Labour – Child Abuse – Violence against Women – Domestic Violence

Unit – IV

Castism – Communalism –Regional Unrest – Minorities and Reservation - Lingustism

Unit – V

Alcoholism – Drug Abuse – Digital Divide - Cyber Crime – Social Media and Awareness

Books for Reference:

1. G. David Mandelbaum, Society in India, SAGE TEXTS, New Delhi; 2016

2. Veena Das (ed), Oxford Handbook of Indian Sociology, Oxford University Press, New Delhi, 2004

3. T.K. Oommen, Social Inclusion in Independent India Dimensions and Approaches, Orient Black Swan Pvt Ltd, New Delhi, 2016

4. O.P. Goel (ed), Role of NGOs in Development of Social System, ISHA Books, Delhi, 2004