ANNEXURE-II
PAPER-I
SYLLABUS
FORENSIC SCIENCE (PG DEGREE STANDARD)

Code No. 226

UNIT- I :

Forensic Science - Definition - Development of Forensic science in India - Organization andfunctions of Forensic laboratory

UNIT- II :

Physical evidences - their classification and significance - Locard's Principle of exchange- class andindividual characteristics.

Crime Scene examinations - documentation of crime scene- recognition, collection, preservationand transportation of physical evidence for laboratory examinations.

Fundamentals of photography - crime scene photography

UNIT – III :

Foot and tyre impressions - Walking pattern - Recording and examination of foot prints and tyreprints.
Finger prints - Fundamental principles - Finger print patterns - classification of finger prints - methods of developments of latent finger prints.

UNIT- IV :

Tool marks - identification - restoration of filed off/erased marks - Detection of counterfeit coins andcurrency.

Fire arms, Bullet and cartridge case identification - pellets and wads - Range of firing.

UNIT- V :

Fire and arson - Natural fires - Arson - Accelerants - Combustible properties of flammablesubstances.

Explosives - Classification of explosive substances - Combustion, detonation and explosion - Effectsof explosion - Military and industrial explosives - Improvised explosive devices - Explosive residues -Residues examination.

UNIT- VI :

Questioned documents, identification of hand writing, type writer and forged signatures - Erasures and alterations on documents and their detection

UNIT - VII :

Broken glass - glass fractures - direction of force - backward fragmentation - comparison of glass fragments.

Forensic examination of soil and paints, Theory and practice of polygraph and voice identification

UNIT- VIII :

Toxicology - classification and mode of action of poisons - narcotic drugs - alcoholic beverages - isolation and identification of poisons, drugs and alcohol

UNIT- IX :

Examination of biological fluids - blood, seminal and saliva stains - forensic characterization of the above stains - stain patterns of the blood, Examination of fibres, hair, bones, teeth and skull - Fundamental of DNA typing.

UNIT- X :

Instrumental methods of organic analysis - principles of chromatography, spectrophotometry, and mass spectrometry.

Instrumental methods of inorganic analysis - Principles of emission and atomic absorption spectra - X-ray diffraction - Neutron activation analysis.

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PAPER-I
SYLLABUS
BIOLOGY (PG DEGREE STANDARD)

Code No.227

UNIT- I :

General classification and salient features of Invertebrata and vertebrata – Metamorphosis and regeneration in lower forms of animal – Economic importance of oyster, honey bee, Silkworm – Agricultural pests and their control – Larval forms of crustacean and Echinodermata - Classification and identification of poisonous and nonpoisonous snakes and types of snake venom. Evolution: Theories, types and factors influencing evolution Evidences of human evolution – Human genetics: Pedigree analysis, lod score for linkage testing, Karyotyping, Significance of human genome project.

UNIT- II :

Structural organization and importance of animal cells - Muscle cells – Cardiac, Striated and non- striated muscle cells– HepatocytesNeurons, Nephrons, Karatocytes, immune and endocrine cells. Functions of hormones and their receptors – Impact of sex hormones in human behavior. Chronobiology: importance of circadian rhythm and human biological clock – DNA analysis inpaternity testing – Cell counting of WBC and RBC.Functions and disorders of Digestive, Respiratory, Cardiovascular Nervous, Muscular, Excretory, Reproductive and Integumentary systems. Developmental biology: production of sperm and egg, Fertilization – Zygote, Cleavage. Blastulation, gastrulation and formation of germ layers in animals and organogenesis –determination of sex by Amniocentosis. Entomology: Insect classification – Beneficial and harmful insects – Role of insects in decomposition of decayed materials – Exploiting insect olfaction in forensic studies – Importance of ants, blowflies and beetles in forensic investigation.

UNIT – III :

Fundamentals of Anthropology

Meaning – Scope and branches of Anthropology – Basic concepts / principles of Physical orBiological Anthropology – Anthropology and its relation with other Social, Biological and Medical Sciences – Analysis of kinship – Health and Ethno medicine – Population dynamics with special reference to Tamil Nadu – Applied and developmental Anthropology – Tribal, Rural and Urban Communities

Research Methodology- Anthropological research – Fieldwork Tradition, Methods and Techniques, Qualitative and Quantitative research Methods, Observation, Case study, Ethnography, Life histories and Personal documents, Visual Anthropology, Genealogical Methods.

UNIT – IV :

Physical / Biological Anthropology

Position of human being in the animal kingdom – Human Evolution - Theories of human evaluation, Human growth and development – Factors affecting for growth, Demographic growth variation, Sex and Gender – Bio-cultural dimensions, Race and Ethnicity - Major racial groups of India, Ethnicity and contemporary relevance – Applied physical anthropology - Anthropometry and itsuses, DNA Technology, genetic diseases, Forensic Anthropology and criminal investigations.

UNIT-V :

Chemistry of Biomolecules

Carbohydrates – Structure and functions [Mono,Di &Polysaccharides] – Disorders of CarbohydrateMetabolism and its laboratory diagnosis.

Proteins and Amino acids – Types, structure and function.

Lipids – Types structure and functions. Sterols –Cholesterol.Disorders of lipid metabolism and itslaboratory diagnosis.

Nucleic acid – DNA – Types, structure and functionsRNA –

Types, structure and functions

Enzymes – Classification and properties of enzymes, Coenzymes, Marker enzymes

Hormones- Classes and functions of hormones

UNIT-VI :

Biochemical and Molecular Techniques

Blood and its composition – WBC, RBC and Platelets. Blood clotting, Blood grouping, Crossmatching and compatibility tests, Blood smear analysis, HLA typing.

Antigens and Immunoglobins – Classes and functions. Collection and Preservation of Biological fluids [Blood, Urine, CSF, Amniotic fluid, Semen, Sputum and Saliva].Normal and Abnormal constituents of Biological fluids.

Isolation of DNA from blood sample, Agarose gel Electrophoresis, PCR,DNA Sequencing, RAPD,RFLP, DNA Finger printing -STR Typing.
Isolation of Proteins from blood sample, SDS PAGE, RIA, ELISA, FISH. Ames test, Comet Assay.

UNIT- VII :

Origin of Microbiology, Contribution of Louis Pasteur, Alexander Flemming, Waksman, Robert Koch.Microscopy; Brightfield, Phase contrast, Fluorescent, Electron Microscopy and Confocal Microscopy. Staining techniques. Cultivation of Microorganisms, Preparation of culture media, Sterilization techniques, Preservation techniques, Identification of Microorganisms; Conventional and Molecular techniques.

Host parasite interaction, Microbial diseases, Nosocomial infection, Zoonotic diseases, Food borne diseases, Microbial diseases of medical negligence. Bioterrorism and Biohazards.

UNIT- VIII :

DNA profiling, Genetic code, Mutation and DNA polymorphism, Microbial nanotechnology, Infectomics. Biodeteriotion of fibres and leather, Bioremediation, Bioconversion - Biogas technology, Environmental microbiology - Microbiology of air, water and soil. Role of microbes in production of fermentation products.

Production of antibiotics, Enzymes, Pigments, Insulin, Interferon, Monoclonal antibodies and GrowthHormones. Recombinants DNA technology.

Microbial biofertilizers, Microbial biopesticides and Microbial degradation of synthetic pesticides.

UNIT – IX :

Plant Diversity, Cell Biology – Taxonomy and Paleo botany, Plant PhysiologyPlant biochemistry,Plant pathology
Plant Diversity – Algae, Fungi, Bryophyte, pteridophytes, Gymnosperms, lichen.
Cell Biology – Cell structure and functions
Taxonomy– Principals of Taxonomy and phylogeny of angiosperms, Nomenclature of plants, Monocotyledons and dicotyledons
Paleo botany – Fossil plants
Plant Physiology and Plant biochemistry – Ezymes, Protein, Aminoacid and photo synthesis, respiration
Plant pathology – Bacterial, Fungal and Viral Diseases of Plants.

UNIT- X :

Plant Anatomy, Embryology, Genetics, Economic Botany, Ethnobotany, Environmental Botany **Plant Anatomy** – Cell cycle, Cell division, Tissue system and secondary growth, Fruit wall and seedcoat.
Embryology – Embryogenesis, Polyembryony, Double fertilization, Somatic Embryogenesisand Pollen grains.
Genetics – Mendelism, Linkage, crossing-over, chromosome mapping, RAPD and RFLPTechniques.
Economic Botany – Wood and Wood products, Fatty Oils and Vegetable Oils. Tannins and Dyes.
Ethnobotany – Ethno Medicinal Plants, Narcotic Plants.
Environmental Botany – Plant adaptations, Hydrophytes, Xerophytes, Mesophytes, Epiphytes,Halophytes and Mangrove vegetation. Ecological Indicators, Forest and Forest Management.

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PAPER-I
SYLLABUS
CHEMISTRY (PG DEGREE STANDARD)

Code No.228

Unit – I : Quantum Chemistry :Quantum mechanical postulates – Eigen value and function – the Schrodinger wave equation – elementary applications of Schrodinger's equation – the particle in a box (one, two and three dimensional cases) – particle in a ring. The harmonic oscillator –the rigid rotor – the hydrogen atom – the Schrodinger equation for hydrogen atom – angular momentum – term symbols – Approximation methods – perturbation and variation method – application to hydrogen and helium atoms – R.S. coupling and term symbols for atoms in the ground state – Slaterorbital and HF – SCF methods Born open – Heimer approximation – valence bond theory for hydrogen molecule – LACO – MO theory for di and polyatomic molecules – concept of hybridization – Huckel theory for conjugated molecules (ethylene butadiene and benzene) – semi empirical methods.

Unit – II: Chemical Kinetics and Thermodynamics: Rate laws – rate constant for first, second, third and zero order reaction – Half life period Temperature dependence on rate – Arrhenius theory – collision theory – Absolute reaction rate theory – ionic reaction – salt effect – catalysis – Laws of photo chemistry, quantum efficiency - photo physical processes of electronic excitedmolecules.
Partial molar properties – Chemical Potential – Partial molar volume and molar heat content – significance and determination – Thermodynamics of real gases - gas mixture – fugacity definition – determination of fugacity variation of fugacity with temperature and pressure – concept of thermodynamic probability – distribution of distinguishable and non – distinguishable particles.Maxwell – Boltzmann, Fermi-Dirac and Bose Einstein statistics – modes of contribution to energy – partition function – translational, vibrational and rotational partition functions for mono, diatomic and polyatomic ideal gases.

Unit – III : Nuclear Chemistry : Nuclear properties –nuclear spin and moments, origin of nuclear forces, salient features of liquid drop and shell models. Types of radioactive decay: Orbital electron capture, nuclear isomerism, internal conversion, detection and determination of activity by cloud chamber, nuclear emulsion, bubble chamber, G.M., Scintillation and Cherenkov counters; Accelearators – Linear and Cyclotron. Nuclear reaction: Types, reaction cross section, Q-value, threshold energy, compound nucleus theory: nuclear fission and fusion reactions as energy sources:photonuclear and thermo nuclear reactions. Components of nuclear reactor – the fast breeder reactor – nuclear reactors in India. Radioactive tracer – principles of tracer technique – applicationof tracers in the study of reaction mechanism and in analytical chemistry – neutron activation analysis, isotope dilution analysis – radio chemical determination of age of geological specimen. Tracers as applied to industry and agriculture – radioactive tracer in the diagnosis and treatment in the field of medicine.

Unit- IV: Electrochemistry : Mean ionic activity and activity coefficient: concept of ionic strength, Debye-Huckel theory of strong electrolytes – activity coefficient of strong electrolytes-determination – Deby Huckel limiting law at appreciable concentration of electrolytes – Debye Huckel Bronsted equation – qualitative and quantitative verification. PH & PKa of acids and bases – determents and buffer actions conductometric and potentiometric tirations Mechanism of electrode reaction – polarization and overpotential. Corrosion and passivation of metals: Pourbaix and Evans diagrams –fuel cells – electrodeposition – principle, applications and anticorrosion techniques.

Unit – V : Spectroscopy Electromagnetic radiations and quantization of energy: Rotational spectra of diatomic molecules – isotopic substitution and rotational constants – vibrations spectra of linear symmetric, linear asymmetric and bent tri atomic molecules – electronic spectra – selection rules – nuclear magnetic resonance – chemical shifts – spin – spin coupling – election spin resonance and hyperfine splitting theoretical principles of mass spectroscopy. Application's of UV, IR, NMR, ESR and mass spectroscopy for structural elucidation of organic compounds, inorganic complexes and free radicals.

Unit – VI : Organometallic compounds, Bio inorganic chemistry and Polymers: Metal carbonyls, Metal nitrosyls, metal alkyl, alkenes and arene compounds – organic metallic compoundsin catalysis – Chemistry of prophyrins – chlorophyll hemoglobin, myoglobin, ferrodexin, rubredoxin and cytochromes. Preperation and uses of polyethylene and uses of polyethylene, poly butylenes PVC, Nylon – Ziegler – Natta catalysts – Inorganic Polymers such as silicones, Borazines and phosphonitrilic compounds.

Unit – VII : Organic reaction mechanism and Stereochemistry: General methods of reaction mechanisms (Kinetic and non kinetic) SN 1, S N 2 mechanisms – addition substitution, elimination and rearrangements – free radical mechanism – aromatic substitution – formation and stability of reactive intermediates – The arenium ion mechanism. Orientation and reactivity (ortho, meta and para directing groups). Typical reactions to be studied – nitration, halogenations, alkylation, acylation and diazonium coupling. Formylation – Gatterman, Gatterman-Koch, Vilsmeyer-

Hack & Reimer-Tieman, Ziegler alkylation, Chichibabin, Aldol condensation – Claisen condensation – Perkin, Cannizaro, Fridel Craft, Favorski, Strok enamine – Michael addition – Baeyer – villager – Chichibabin. Pericyclic reactions – classification and examples woodward and Hoffmann rules – use of OsO_4 , diborane, $NaBH_4$, $LiAlH_4$ in organic synthesis. Photo Chemistry of ketones, photo oxygenation, photo reduction, photocycloaddition, Paterno - Buchi reaction, Di-pi-methane rearrangement. Cis-trans isomerisation, Barton reaction and photo-Fries reaction.

Elements of symmetry – optical and geometric isomerism E.Z and R.S notation's – Conformational analysis simple cyclic and acyclic systems – Effects of conformation on reactivity in acyclic compounds and cyclothexanes. Relative stabilities of cis – trans isomers.

Unit – VIII: Natural Products and Drugs : Carbohydrates - Classification – configuration and general reactions of monosaccharide's – Chemistry of glucose, fructose, sucrose and maltose, important compounds in Chemistry – Dyes – azo triphenylmethane and phthalein groups – indigo – alizarin vitamins, hormones, proteins – structural determination –Terpenoids – classification, isolation, general properties of citral, α –Terpineol, menthol, champhor. Alkaloids and Flavonoids – Nomenclature and classification general properties – colour reactions, structure for Nicotine, atropine, cocaine, quinine, morphine and Heroin.

Drugs: Pharmacological actions, therapeutic uses and screening tests of the following drugs – opium alkaloids – morphine, heroin, antibiotics – synthetic analgesics – pethidine, methadone – barbiturates – tranquilizers – phenothiazines, meprobamate, diazepam – stimulants – amphetaminies, imipramines – hallucinogens – cannabinoids, LSD – hyhpnosis and sedatives – antipyretics, analgesic, antiseptics and disinfectants – Alcohol - manufacture of ethyl alcohol and liquors – constituents of liquors – estimation of alcohol contents in liquors – denaturation, denaturants, industrial alcohol and power alcohol.

Unit - IX : Poisons and Pesticides : Definition of poisons – Mode of action of poisons – Extraction and purification of poisons in toxicological analysis – Volatile poisons – metallicpoisons – non- volatile organic poisons – water soluble compounds – protein precipitation methods. Estimation of the following poisons – Carbon monoxide, cyanide, formaldehyde, methanol, chloral, chloroform, phenols, cresols, phosphorus and amphetemines - Signs and symptoms of H_2SO_4, HNO_3, CO_2, $H_2 S$ poisoning. Analytical methods for the estimation of ethyl alcohol. Metallic poison –signs, symptoms of arsenic, mercury, lead and copper – Reinch test - Marsch Berzelius and Gutzeit tests – volumetric,colorimetric and instrumental methods of analysis of the above metals. Pesticides & Insecticides – Definition – general propertics poisonous nature – detection & isolation.

Unit – X : Analytical Chemistry and Instrumental methods: Significant figures – precession & accuracy – Errors - minimizing methods – estimation of errors – rejection of observation.
Absorption, partition chromatography – Gas Chromatography – HPLC – Solvent extraction and ion exchange methods – atomic absorption spectroscopy – Electron analytical techniques voltammetry, cyclic voltammetry, polarogaphy, amperonmetry, Coulmetry and conductometry, ion-Selective electrodes – TGA, DTA and DSC.

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PAPER-I
SYLLABUS
PHYSICS (PG DEGREE STANDARD)

Code No.229

1. UNIT-I MECHANICS – RELATIVITY AND SPACE PHYSICS:-

Impulse – Impact – Laws of Impact – Direct impact and Oblique impact between two smooth Spheres – Loss of Kinetic theory – Motion of two interacting bodies – Reduced mars – Rigid bodydynamics
RELATIVITY: Postulates of Special Theory of relativity – Lorentz transformation Equations and its Consequences – Relativity of Simultaneity - Mass Energy Equivalence
SPACE PHYSICS: Escape Velocity – Orbital Velocity – Geo Stationary Orbits and Satellite Communication – Remote Sensing.

2. UNIT-II CLASSICAL MECHANICS:-

Generalised Co-ordinates – D'Alembertz Principle - Lagrangian Equations and its applications – Hamilton's Equations from Variation Principle – Principle of Least Equation – Canonical Transformations and its applications – Hamilton – Jacobi Theory – Action Angle Variable – Kepler's Problem – Theory of Small Oscillations – Eulerian Angles, Eulerian Theorm – Coriolis force – Euler Equations of motion.

3. UNIT-III THERMODNAMICS – STATISTICAL MECHANICS:-

Laws of thermodynamics – Entropy – Thermodynamic potentials – Maxwell's equations and its applications Gibbs phase rule – Phase transition –Vanderwaal's equation of State.
CLASSICAL STATISTICS: Micro and Macro States – Liouville's theorm – Micro Canonical and grand Canonical ensembles – partition function Gibb's Paradox.
QUANTUM STATISTICS: Maxwell's distribution – BE Statistics – Black body radiation – planck's Radiation Law – FD Statistics – Applications

4. UNIT- IV OPTICS – ATOMIC AND MOLECULAR SPECTROSCOPY:-

Basic ideas of Interference, Diffraction and Polarisation – Principle of LASER and its applications –Coupling Schemes – Zeeman effect – Paschen – Back effect – Spectra Structure of atomic molecules – Rotation, Vibration and Rotation – Vibration Spectra Frank – Condon principle – Microwave, IR, RAMAN, Mossbauer, NMR, NQR and ESR Spectroscopy – Principle, techniqueand applications.

5. UNIT-V SOLID STATE AND NUCLEAR PHYSICS:-

Crystal Classes and Systems – 2D, 3D Lattices – Lattice heat capacity X-rays – X-ray diffraction – Uses – Band theory of Solids – Fermi level – Superconductivity – Basic concepts – application of Super Conductors. Different types of magnetic materials.
Nucleus – Properties and Structure – Nuclear forces – Binding energy – Radioactive decays – Particle detectors and accelerators – Nuclear fission and fusion – Elementary particles – Cosmic Rays.

6. UNIT-VI QUANTUM MECHANICS:-

Basic formalism – Schroedinger time dependent and time independent equations – eigen values and eigen functions – uncertainty principle – Hilbert space - Dirac notation – Schroedinger and Heisenberg interaction picture – WKB Quantisation rule – Time dependent perturbation theory – Fermi golden rule – Born and Sudden approximations – Dirac's relativistic equation – Dirac's equation for a central field – Sipin angular momentum – negative energy states.

7. UNIT-VII ELECTRO MAGNETIC THEORY:-

Gauss Law – Laplace and Poisson equations – Biot and Savart Law – Ampere Law – Faraday's Laws of induction – Maxwell's Equations – Molecular Polarisability and electrical susceptibility – Lorentz force – Equation of Continuity – Propagation of EM Waves in non conducting and conducting medium – relection and refraction at a plane interface between dielectrics – Radiation from a localised source – oscillating electric dipole.

8. UNIT-VIII ELECTRONIC DEVICES AND APPLICATIONS:-

Semi Conductor diode and Transistor – Optoelectronic devices – photo diode, photo transistor, LDR, LED, LCD, Special Semi conductor devices – JFET, MOSFET, UJT, SCR – Characteristics and applications – Operational amplifier Characteristics and applications – 555 timer – Block diagram and working.

Electrodes and transducers used in ECG and EEG techniques – ultrasound Scan – Basic ideasof CT and MRI Scan.

9. <u>UNIT-IX DIGITAL ELECTRONICS AND MICROPROCESSOR:-</u>

Logic gates – half and full adder and subtractors – Parellel binary adder – 8421 adder – karnaughmap –NAND – NOR networks – flipflops – counters and shift registers - Architecture of 8085 – Addressing models – Instruction set – Programming techniques – Semiconductor memory types
– RAMS and ROMS – Interfacing of memory devices and I/o Ports.

10.<u>UNIT- X COMMUNICATION ELECTRONICS:-</u>

Directional high frequency antennas – Sky wave propagation – Ground wave propagation – Modulation and demodulation techniques – Principle of radio communication – AM and FM transmission – RADAR Principle and equation – Television transmission and reception – Fibre optics – Propagation of Light in an Optical fibre – Losses and dispersion – applications

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PAPER-I
SYLLABUS
COMPUTER SCIENCE (PG DEGREE STANDARD)

Subject code: 287

UNIT - I: MATHEMATICAL FOUNDATIONS

AUTOMATA, LANGUAGES AND COMPUTATION Basic concepts of strings, alphabets, languages, finite automaton, regular expressions, Moore and Mealy machines, regular sets, minimization of finite automata, Chomsky hierarchy of languages, relation between classes of languages, context free grammar, pushdown automata, Linear bounded automata, Turing machines, halting problem and decidability.
DESIGN AND ANALYSIS OF ALGORITHMS Design Techniques, divide and conquer, greedy method, dynamic programming etc., graph algorithms, Strassen's matric multiplication algorithm, geometric algorithms, NP complete problems, approximation algorithms.

UNIT - II: COMPUTER ARCHITECTURE

Review of elements of Computer organisation - Machine instructions, addressing modes, instruction pipeling, memory organization. CPU and system buses, bus standards, Von Neumann Vs Non Von Neumann architectures, language directed architectures, RISC architectures, object oriented architectures, memory and I/O subsystems - Hierachial memory, virtual memory system memory allocation and management, cache memories, I/O subsystems, architectural classification, pipelined processors, vector processing. Array processors, multiprocessor architectures.

UNIT - III: DATA STRUCTURES IN C++

Data types, control statements, procedures, Scope rules, arrays and records, enumerated datatypes, sets, pointers, recursion. Sequential, indexed files, sorting and merging report generations. Arrays, queues, linked lists, stacks, tree traversal, evaluation of expressions using postfix notation, sorting algorithms, bubble sort, quick sort, heap sort, complexity of algorithms.

UNIT - IV: COMPILERS AND ADVANCED OPERATING SYSTEMS

Assemblers loaders, linkers, macro processor, text editors, programming languages, lexical analysis, parsing techniques, precedence grammars, symbol tables, scope rules and parameter passing mechanisms, syntax directed translation, run time environment, machine code generation, interpreter.

ADVANCED OPERATING SYSTEMS

(a) Review of uniprocessor operating system: Batch, multiprogramming and time-sharing systems, operating system concepts, memory, device and file management, process scheduling, interprocess communication, process synchronization and concurrency, deadlocks, protection.

(b) Multiprocessor operating system: Classification of multiprocessor operating systems, software and operating system requirements for multiprocessors, multiprocessor scheduling strategies. (c) Distributed Operating System: Communication in distributed systems, client server model, remote procedure call, group communication, synchronization in distributed systems, mutual exclusion and election algorithms, deadlocks in distributed systems, processor allocation algorithms, scheduling in distributed system, distributed file systems

UNIT - V: DATABASE MANAGEMENT SYSTEMS

Elements of data base systems, file organization, relational and network data models, normal forms, query languages. Design and implementation of typical database systems, Internal and external consistency, concurrency control techniques, object oriented data bases.

UNIT - VI: MOBILE COMMUNICATIONS

Mobile IP: Goals – Packet Delivery – Strategies – Registration – Tunneling and Reverse Tunneling – Adhoc Networks – Routing Strategies. WIRELESS APPLICATION PROTOCOL [WAP] – Architecture – XML – WML Script – Applications.

UNIT - VII: SOFTWARE PROJECT MANAGEMENT

Software Project Planning: Size Estimation - Cost Estimation Models - The Constructive Cost Model (COCOMO)-COCOMO II - The Putnam Resource Allocation Models -Software Risk Managements.

UNIT - VIII: MULTIMEDIA AND WEB TECHNOLOGIES

Uses of Multimedia – Introduction to making multimedia – Multimedia skills. Multimedia hardware and software – Connections – Memory and storage devices – Input devices – Outputdevices – Communication devices. Basic software tools – Text editing and word processing tools – Painting and drawing tools – 3-D modelling and animation tools – Image editing tools – Animation, video and digital movie tools. Making instant multimedia – Multimedia authoring tools. Multimedia Building Blocks – Text – Sound – Multimedia System Sounds – MIDI versus Digital Audio – Digital Audio – Making MIDI Audio – Audio File Formats – Production tips - Images – Animation - Video.
The world wide web: Browsing the Web - Web address - Web browser basics - Strong and managing(book marks) - Surfing the web with web browser - Searching the web directory - Search engines - Navigation tools.
Email: Sending - Reading - Replying - Deleting - Exiting - Sending Mail to more than one person sending folder - Forwarding a mail - Checking the spelling - Attachments. **HTML:** Overview of HTML - Adding structure to a page formatting text and pages - Linking page to the world - Including picture - Clearing lists - Arranging items within tables - Getting feedback from form - Splitting a page into frames.

UNIT - IX: OBJECT ORIENTED ANALYSIS AND DESIGN

Unified Modeling Language [UML] - Diagrams - Class - Use case - Naming Classes - Identifying Objects, Relationships, Attributes, Methods - Association - Super and Sub Class Relationship - Aggregation.

UNIT - X: ADVANCED TOPICS: ARTIFICIAL INTELLIGENCE, CLOUD COMPUTING,CYBER SECURITY

Artificial Intelligence: Production systems, different strategies, hill climbing, backtracking, graph search specialised production systems, minimax procedure, alphabeta pruning, resolution and refutation, control strategies, structured representation of knowledge, semantic nets, frames.
Cloud Computing: Architecture - Deployment Models - Application Virtualization - Hardware Virtualization.
Network Security: Potential Attacks to Computer System – Cryptography – Authentication – Access Control – Digital Signatures.

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PAPER -II
SYLLABUS FOR WRITTEN EXAMINATION
Part-A
கட்டாய தமிழ்மொழி தகுதித் தேர்விற்கான பாடத் திட்டம்
(கொள்குறி வினாவிற்கான தலைப்புகள்)
பத்தாம் வகுப்பு தரம்

1. பிரித்தெழுதுதல் / சேர்த்தெழுதுதல்.

2. எதிர்ச்சொல்லை எடுத்தெழுதுதல்.

3. பொருந்தாச் சொல்லைக் கண்டறிதல்.

4. பிழைதிருத்தம் (i) சந்திப்பிழையை நீக்குதல் (ii) மரபுப்பிழைகள், வழுவுச் சொற்களை நீக்குதல் / பிறமொழிச் சொற்களை நீக்குதல்.

5. ஆங்கிலச் சொல்லுக்கு நேரான தமிழ்ச் சொல்லை அறிதல்.

6. ஒலி மற்றும் பொருள் வேறுபாடறிந்து சரியான பொருளையறிதல்.

7. ஒரு பொருள் தரும் பல சொற்கள்.

8. வேர்ச்சொல்லைத் தேர்வு செய்தல்.

9. வேர்ச்சொல்லைக் கொடுத்து / வினைமுற்று, வினையெச்சம், வினையாலணையும் பெயர், தொழிற்பெயரை / உருவாக்கல்.

10. அகரவரிசைப்படி சொற்களை சீர் செய்தல்.

11. சொற்களை ஒழுங்குப்படுத்தி சொற்றொடராக்குதல்.

12. இரு வினைகளின் பொருள் வேறுபாடு அறிதல்.
    (எ.கா.) குவிந்து-குவித்து

13. விடைக்கேற்ற வினாவைத் தேர்ந்தெடுத்தல்.

14. எவ்வகை வாக்கியம் எனக் கண்டெழுதுதல் - தன்வினை, பிறவினை, செய்வினை, செயப்பாட்டு வினை வாக்கியங்களைக் கண்டெழுதுதல்.

15. உவமையால் விளக்கப்பெறும் பொருத்தமான பொருளைத் தேர்ந்தெழுதுதல்

16. அலுவல் சார்ந்த சொற்கள் (கலைச்சொல்)

17. விடை வகைகள்.

18. பிறமொழிச் சொற்களுக்கு இணையான தமிழ்ச் சொற்களைக் கண்டறிதல் (எ.கா.) கோல்டு பிஸ்கட் – தங்கக்கட்டி.

19. ஊர்ப் பெயர்களின் மரூஉவை எழுதுக (எ.கா.) தஞ்சாவூர் – தஞ்சை

20. நிறுத்தற் குறிகளை அறிதல்.

21. பேச்சுவழக்கு, எழுத்துவழக்கு (வாரான் – வருகிறான்).

22. சொற்களை இணைத்து புதிய சொல் உருவாக்கல்.

23. பொருத்தமான காலம் அமைத்தல்
    (இறந்தகாலம், நிகழ்காலம், எதிர்காலம்).

24. சரியான வினாச்சொல்லைத் தேர்ந்தெடு.

25. சரியான இணைப்புச் சொல்
    (எனவே, ஏனெனில், ஆகையால், அதனால், அதுபோல).

26. அடைப்புக்குள் உள்ள சொல்லைத் தகுந்த இடத்தில் சேர்க்க.

27. இருபொருள் தருக.

28. குறில் – நெடில் மாற்றம், பொருள் வேறுபாடு.

29. கூற்று, காரணம் – சரியா? தவறா?

30. கலைச் சொற்களை அறிதல் :-

    எ.கா. – Artificial Intelligence – செயற்கைநுண்ணறிவு

    Super Computer – மீத்திறன் கணினி

31. பொருத்தமான பொருளைத் தெரிவு செய்தல்

32. சொற்களின் கூட்டுப் பெயர்கள் (எ.கா.) புல் –புற்கள்

33. சரியான தொடரைத் தேர்ந்தெடுத்தல்

34. பிழைதிருத்துதல் (ஒரு-ஓர்)

35. சொல் – பொருள் – பொருத்துக

36. ஒருமை-பன்மைபிழை

37. பத்தியிலிருந்து வினாவிற்கான சரியான விடையைத் தேர்ந்தெடு.

Part-B
GENERAL STUDIES (DEGREE STANDARD)

CODE NO.003
Topics for Objective Type

UNIT-I: GENERAL SCIENCE

(i) Scientific Knowledge and Scientific Temper - Power of Reasoning - Rote Learning vs Conceptual Learning - Science as a tool to understand the past, present and future.

(ii) Nature of Universe - General Scientific Laws – Mechanics - Properties of Matter, Force, Motion and Energy - Everyday application of the Basic Principles of Mechanics, Electricity and Magnetism, Light, Sound, Heat, Nuclear Physics, Laser, Electronics and Communications.

(iii) Elements and Compounds, Acids, Bases, Salts, Petroleum Products, Fertilisers, Pesticides.

(iv) Main concepts of Life Science, Classification of Living Organisms, Evolution, Genetics, Physiology, Nutrition, Health and Hygiene, Human Diseases.

(v) Environment and Ecology.

UNIT-II: CURRENT EVENTS

(i) History-Latest diary of events-National symbols-Profile of States-Eminent personalities and places in news–Sports-Books and authors.

(ii) Polity – Political parties and political system in India-Public awareness and General administration- Welfare oriented Government schemes and their utility, Problems in Public Delivery Systems.

(iii) Geography-Geographical landmarks.

(iv) Economics-Current socio-economic issues.

(v) Science-Latest inventions in Science and Technology.

(vi) Prominent Personalities in various spheres – Arts, Science, Literature and Philosophy.

UNIT-III: GEOGRAPHY OF INDIA

    (i)   Location – Physical features - Monsoon, Rainfall, Weather and Climate-Water Resources - Rivers in India-Soil, Minerals and Natural Resources-Forest and Wildlife - Agricultural pattern.

    (ii)   Transport -Communication.

    (iii)   Social Geography – Population density and distribution- Racial, Linguistic Groups and Major Tribes.

    (iv)   Natural calamity – Disaster Management – Environmental pollution: Reasons and preventive measures – Climate change – Green energy.

UNIT–IV: HISTORY AND CULTURE OF INDIA

    (i)   Indus Valley Civilization - Guptas, Delhi Sultans, Mughals and Marathas-Age of Vijayanagaram and Bahmani Kingdoms-South Indian History.

    (ii)   Change and Continuity in the Socio-Cultural History of India.

    (iii)   Characteristics of Indian Culture, Unity in Diversity –Race, Language, Custom.

    (iv)   India as a Secular State, Social Harmony.

UNIT-V: INDIAN POLITY

    (i)   Constitution of India-Preamble to the Constitution- Salient features of the Constitution- Union, State and Union Territory.

    (ii)   Citizenship, Fundamental Rights, Fundamental Duties, Directive Principles of State Policy.

    (iii)   Union Executive, Union Legislature – State Executive, State Legislature – Local Governments, Panchayat Raj.

    (iv)   Spirit of Federalism: Centre-State Relationships.

    (v)   Election - Judiciary in India – Rule of Law.

    (vi)   Corruption in Public Life– Anti-corruption measures – Lokpal and Lok Ayukta - Right to Information- Empowerment of Women-Consumer Protection Forums, Human Rights Charter.

UNIT-VI: INDIAN ECONOMY

(i) Nature of Indian Economy –Five year plan models-an assessment – Planning Commission and Niti Ayog.

(ii) Sources of revenue – Reserve Bank of India – Fiscal Policy and Monetary Policy - Finance Commission–Resource sharing between Union and State Governments - Goods and Services Tax.

(iii) Structure of Indian Economy and Employment Generation, Land Reforms and Agriculture-Application of Science and Technology in Agriculture-Industrial growth-Rural Welfare Oriented Programmes – Social Problems – Population, Education, Health, Employment, Poverty.

UNIT-VII: INDIAN NATIONAL MOVEMENT

(i) National Renaissance –Early uprising against British rule - Indian National Congress - Emergence of leaders –B.R.Ambedkar, Bhagat Singh, Bharathiar, V.O.Chidambaranar, Jawaharlal Nehru, Kamarajar, Mahatma Gandhi, Maulana AbulKalam Azad, Thanthai Periyar, Rajaji, Subash Chandra Bose, Rabindranath Tagore and others.

(ii) Different modes of Agitation: Growth of Satyagraha and Militant Movements.

(iii) Communalism and Partition.

UNIT-VIII: History, Culture, Heritage and Socio-Political Movements in Tamil Nadu

(i) History of Tamil Society, related Archaeological discoveries, Tamil Literature from Sangam Age till contemporary times.

(ii) Thirukkural : (a) Significance as a Secular Literature
          (b) Relevance to Everyday Life
          (c) Impact of Thirukkural on Humanity
          (d) Thirukkural and Universal Values - Equality, Humanism, etc
          (e) Relevance to Socio-Politico-Economic affairs
          (f) Philosophical content in Thirukkural

(iii) Role of Tamil Nadu in freedom struggle - Early agitations against British Rule - Role of women in freedom struggle.

(iv) Evolution of 19th and 20th Century Socio-Political Movements in Tamil Nadu - Justice Party, Growth of Rationalism - Self Respect Movement, Dravidian Movement and Principles underlying both these Movements, Contributions of Thanthai Periyar and Perarignar Anna.

UNIT–IX: Development Administration in Tamil Nadu

(i) Human Development Indicators in Tamil Nadu and a comparative assessment across the Country – Impact of Social Reform Movements in the Socio-Economic Development of Tamil Nadu.

(ii) Political parties and Welfare schemes for various sections of people – Rationale behind Reservation Policy and access to Social Resources - Economic trends in Tamil Nadu – Role and impact of social welfare schemes in the Socio-Economic Development of Tamil Nadu.

(iii) Social Justice and Social Harmony as the Cornerstones of Socio-Economic Development.

(iv) Education and Health Systems in Tamil Nadu.

(v) Geography of Tamil Nadu and its impact on Economic growth.

(vi) Achievements of Tamil Nadu in various fields.

(vii) e-Governance in Tamil Nadu.

UNIT-X: APTITUDE AND MENTAL ABILITY

(i) Simplification – Percentage - Highest Common Factor (HCF) - Lowest Common Multiple (LCM).

(ii) Ratio and Proportion.

(iii) Simple interest - Compound interest - Area - Volume - Time and Work.

(iv) Logical Reasoning - Puzzles-Dice - Visual Reasoning - Alpha numeric Reasoning – Number Series.