BANGALORE UNIVERSITY B.Sc.(CBCS) PHYSICS

Approved Syllabus effective from Academic year 2016-17

BANGALORE UNIVERSITY
Scheme of Instruction & Examination for B.Sc. PHYSICS , CBCS

Serial Number	Paper Number	Teaching hours per week	Examination duration	Maximum marks		Maximum total marks	Credits
				Final exam	Internal Assessment		
01	PHY T101	4	3 hours	70	30	150	2
02	PHY P102	3	3 hours	35	15		1
03	PHY T201	4	3 hours	70	30	150	2
04	PHY P202	3	3 hours	35	15		1
05	PHY P301	4	3 hours	70	30	150	2
06	PHY T302	3	3 hours	35	15		1
07	PHY T401	4	3 hours	70	30	150	2
08	PHY P402	3	3 hours	35	15		1
09	PHY T501	3	3 hours	70	30	150	2
10	PHY P502	3	3 hours	35	15		1
11	PHY T503	3	3 hours	70	30	150	2
12	PHY P504	3	3 hours	35	15		1
13	PHY T601	3	3 hours	70	30	150	2
14	PHY P602	3	3hours	35	15		1
	PHY T603	3	3 hours	70	30	150	2
16	PHY P604	3	3hours	35	15		1
					Grand total	1200	16(T) 8(P)

BANGALORE UNIVERSITY B.Sc.(CBCS) PHYSICS

Syllabus for I Sem BSc, (Physics) Paper –I : Phy-T101:
MECHANICS – 1 , HEAT AND THERMODYNAMICS – 1

UNIT – I

- **MOTION** : Newton's Laws of Motion (Statement and illustration), Motion in a resistive medium; Drag force& Drag Coefficient, Drag force with v dependence (only vertical) and v^2 dependence (only vertical) – derivation for velocity and position- graphs with and without resistance, concept of terminal velocity

    4 hours

- **FRICTION** : Static and Dynamic Friction – Friction as a self adjusting force, Coefficient of Static and dynamic friction; Expression for acceleration of a body moving along an inclined plane with and without friction, Free Body Diagrams for the following cases (i)Two masses connected by a string hanging over a frictionless pulley (ii)Two masses in contact and masses connected by strings (horizontal only) (iii)Two masses connected by a string passing over a frictionless pulley fixed at the edge of a horizontal table.

    4 hours

- **PLANETARY & SATELLITE MOTION** : Motion along a curve - radial and transverse components of acceleration(derivation); Newton's law of gravitation (vector form only), Kepler's laws (statements only);Gravitational Field and Potential – relation between them; Field and Potential due to a solid sphere (derivation); Orbital and Escape Velocity (derivation), Satellite in circular orbit and applications; Geostationary and Geosynchronous orbits.

    5 hours

UNIT – II

- **WORK & ENERGY** :Work done by a constant and variable force; Work energy theorem; Work and potential energy; examples of potential energy; Work done by gravitational force; Work done by a spring force; Conservative and non – conservative force; Conservation of mechanical energy   **4 hours**
- **SYSTEM OF PARTICLES** :Centre of mass of rigid bodies – General expression; Newton's law for a system of particles; Linear momentum for a particle and a system of particles; Conservation of linear momentum; System with varying mass; Single stage Rocket

motion – Velocity & Acceleration with and without gravity; Elastic and inelastic collisions (only 2D)

4 hours

- **BLACK BODY RADIATION** : Black body radiation and its spectral energy distribution; Kirchhoff's law, Stefan-Boltzmann's law, Wien's displacement law, Rayleigh-Jeans law (Statements), Derivation of Planck's law – deduction of Wien's Law & Rayleigh – Jeans Law, Solar constant and its determination using Angstrom's Pyrheliometer; Estimation of the surface temperature of the sun

5 hours

UNIT – III

- **KINETIC THEORY OF GASES** :Basic assumptions of kinetic theory; Derivation of - deduction of perfect gas equation; Maxwell's law of distribution of velocity *(without derivation)*- deduction of most probable velocity, mean velocity and root mean square velocity; Derivation of expression for mean free path $(\lambda = \frac{3}{4\pi\sigma^2 n}$; $Maxwell's distribution law: \lambda = \frac{1}{\sqrt{2}\pi\sigma^2 n})$; Degrees of freedom and principle of equipartition of energy; Derivation of , Specific heats of an ideal gas, atomicity of gases

6 hours

- **TRANSPORT PHENOMENA :**

Viscosity and thermal conduction in gases *(with derivation)* ;Relation between

coefficient of viscosity and coefficient of thermal conductivity of a gas

2 hours

- **Real Gases** : Derivation of van der Waal's equation of state; Andrews experiments on Carbon dioxide; Derivation of the critical constants; Comparison of van der Waal's isotherms with Andrew's isotherms

5 hours

UNIT – IV

- **Basic Concepts and the Zeroth law of thermodynamics**

Macroscopic and microscopic descriptions of a system; Thermal Equilibrium - Zeroth Law of Thermodynamics; Concept of temperature; Thermodynamic equilibrium;

Thermodynamic coordinates - extensive and intensive; Equations of state; Various processes - PV indicator diagrams **3 hours**

- **First Law of Thermodynamics**

  The first law of Thermodynamics; Sign convention for heat and work; Derivation of equation of state $PV^r = const$; Work done in an isothermal and adiabatic process for an ideal gas; Internal energy as a state function; Application of the first law for (i) Cyclic Process (ii) Adiabatic Process (iii) Isochoric Process (iv) Isobaric Process and (v) Isothermal Process. **3 hours**

- **Second Law of Thermodynamics**

  Reversible and irreversible processes; Carnot Engine; Carnot Cycle and its efficiency (with derivation); Second law of thermodynamics (Kelvin's & Clausius' statements and their equivalence); Practical internal combustion engines - Otto and Diesel Cycles (qualitative treatment); Carnot theorem (proof); Refrigerator- Coefficient of performance **4 hours**

- **Entropy**

  The concept of entropy; Entropy of an ideal gas; Entropy - reversible process, Entropy - irreversible process; Entropy and the second law; Clausius inequality; Principle of increase of entropy; Entropy change in (i) adiabatic process (ii) free expansion (iii) cyclic process (iv) isobaric process; TdS diagram of a Carnot cycle; Entropy and disorder **3 hours**

PHYSICS – P102, PRACTICAL PHYSICS – I

1. Error Analysis – Data analysis techniques and graphing techniques to be learnt (**Mandatory**)

2. Atwood machine – with photogate

3. Determination of coefficients of static, kinetic and rolling frictions

4. Verification of principle of conservation of energy

5. Simple pendulum - dependence of T on amplitude

6. Determination of coefficient of viscosity by Stokes' method

7. Determination the Acceleration due to Gravity and Velocity for a freely falling body, using Digital Timing Techniques.

8. Work done by variable force

9. Interfacial tension by drop weight method

10. Thermal behavior of a torch filament

11. Specific heat by Newton's law of cooling

12. Verification of Newton's law of cooling and Stefan's law of radiation

13. Determination of Stefan's constant by emissivity method

14. Determination of Solar constant

15. Calibration of Thermistor for Temperature measurement

16. Calibration of thermocouple for Temperature measurement

Note: A minimum of EIGHT (8) experiments must be performed

Syllabus for II Sem BSc (Physics) Paper II-Phy-T201:

MECHANICS – 2 , HEAT AND THERMODYNAMICS – 2

UNIT – I

- **OSCILLATIONS** : SHM ; Differential equation of SHM and its solutions, Kinetic and Potential energy, Simple and compound pendulum; oscillations of two masses connected by a spring; damped oscillations – over damped, under damped and un-damped oscillations; forced oscillations - concept of resonance; Coupled Oscillators - in phase and out of phase oscillations- energy transfer.   **6 hours**

- **ELASTICITY**: Hooke's law, Stress – Strain diagram, definitions of three elastic moduli; Relationship between three elastic constants (derivation); Poisson's ratio; Work done in stretching a wire; Bending of beams; Bending moment, Theory of single cantilever, Couple per unit twist, Torsional oscillations.

  7 hours

UNIT – II

- **Thermodynamic potentials** : Internal Energy; Enthalpy; Helmholtz free energy; Gibbs free energy and their significance; Maxwell's thermodynamic relations (using Thermodynamic potentials) and their significance; TdS relations; Energy equations and Heat Capacity equations; Third law of thermodynamics (Nernst Heat theorem)

  4 hours

- **Phase transitions of the first order** : Melting, vaporization and sublimation; Condition of equilibrium of phases in terms of Gibbs potential;Clausius-Clapeyron equation - elevation of boiling point, depression of freezing point; Equilibrium between phases - triple point   **3 hours**

- **Low Temperature Physics** : Methods of producing low temperatures: (i) Joule Thomson (Joule Kelvin / Throttling / Porous plug) experiment, Joule Thomson Coefficient, inversion temperature (ii) Adiabatic demagnetization - working and theory   **4 hours**

- **Liquefaction of gases** : Regenerative cooling coupled with Joule Thomson cooling; Adiabatic expansion with Joule Thomson cooling (qualitative)

  2 hours

UNIT – III

- **FRAMES OF REFERENCE :** Inertial and Non inertial frames of reference - Importance of Inertial frame, Linearly accelerated frames, Concept of frame dependent forces; Galilean relativity - Transformation of Position, Distance/Length, Velocity (Non-relativistic velocity addition theorem), Acceleration; Principle of Invariance, Michelson – Morley Experiment, Search for ether

5 hours

- **SPECIAL THEORY OF RELATIVITY :** Postulates of the special theory of relativity; Lorentz Transformations – Length Contraction, Time Dilation – twin paradox, Velocity Addition Theorem; Variation of mass with velocity; Mass – Energy equivalence; Relativistic momentum and kinetic energy

8 hours

UNIT – IV

- **MOMENT OF INERTIA :** Review of rotational motion of Rigid bodies; Kinetic energy of rotation-Moment of Inertia of a body; Theorem of Moment of Inertia-Parallel and perpendicular axes theorem with proofs (2-D case); Calculation of moment of inertia of a disk, annular ring, solid sphere and rectangular bar; Conservation of angular momentum with illustrations.

9 hours

- **WAVES :** Wave Equation, Speed of transverse waves on a uniform string; Speed of longitudinal waves in a fluid; Group velocity and Phase velocity – relation between them;

4 hours

PHYSICS – P202, PRACTICAL PHYSICS – II

1. Torsional pendulum – to determine C and Rigidity modulus
2. Bar pendulum – determination of g
3. Spring mass- (a) static case to determine 'k'

    (b) dynamic case to determine 'k'

    (c) 'k' as a function of L of spring
4. Rigid pendulum – T and decay of amplitude
5. Coupled oscillator – string coupled with change of tension
6. Rolling dumb bell - on parallel inclined rails
7. Verification of parallel and perpendicular axis theorem
8. Searle's double bar
9. Cantilever of negligible mass to find Young's modulus
10. q- by Stretching
11. q by uniform bending
12. q by single cantilever
13. q by Koenig's method
14. n by dynamic method
15. Fly wheel
16. Verification of Clausius-Clapeyron equation using pressure cooker
17. Thermal conductivity of a bad conductor by Lee's and Charlton's method
18. Thermal conductivity of rubber
19. Determination of thermal conductivity of a good conductor by Angstrom method / Searle's method

Note: A minimum of EIGHT (8) experiments must be performed

Syllabus for III Sem BSc (Physics) Paper III-Phy-T301:

ELECTRICITY and MAGNETISM

UNIT – I

DC CIRCUIT ANALYSIS : Concept of Voltage and Current Sources, Kirchhoff's Current Law, Kirchhoff's Voltage Law (statements). Principle of Duality (voltage and current source equivalents). Thevenin's Theorem (statement and proof), Superposition Theorem(statement and proof), Norton's Theorem (Statement and explanation). Reciprocity Theorem. Maximum Power Transfer Theorem (statement and proof).

8 hours

Transient currents : Self inductance – definition, explanation, expression $L = \frac{\mu N^2 A}{l}$; Magnetic field energy stored in an inductor; Growth and decay of charge in series RC circuit, Growth and decay of current in series LR circuit, Decay of charge in series LCR circuit - Damped, under-damped and over-damped conditions

5 hours

UNIT – II

Magnetic Field and Forces : Force on a moving charge in a magnetic field, Lorentz force and definition of **B**, force on a current carrying conductor in uniform magnetic field, Force between parallel conductors; Definition of ampere;

Biot – Savart's law, Magnetic field due to a straight current carrying conductor (Derivation for Finite/Infinite Length, Amperes swimming rule, Right hand palm rule), Magnetic field of a circular loop; Force and torque on a circular current loop in a magnetic field, magnetic dipole moment, Field on the axis of a solenoid (derivation and explanation), Principle and theory of a moving coil BG, Concept of dead beat galvanometer, determination of high resistance by leakage, theory of HTG, Ampere's Circuital law (statement), Application of Ampere's law to straight wire, solenoid and toroid **13 hours**

UNIT III

Scalar and vector fields : Gradient of a scalar function (use of del operator), Divergence and Curl product rules (explanation with geometrical representation), Line, surface and volume integrals

(explanation with examples), Fundamental theorem for divergence and curl (statements only).

3 hours

ELECTROMAGNETIC WAVES : Equation of Continuity, Displacement Current, Maxwell's equations in differential form (Derivation and physical significance), Derivation of wave equation (for one dimension), Velocity of em waves in free space and isotropic dielectric medium(derivation), Relation between refractive index and permittivity (qualitatively), Transverse nature of Plane em waves, , Poynting Vector, Energy density in electromagnetic field, Momentum and Pressure of em waves (derivation), Electromagnetic waves in a conducting medium – skin effect and skin depth

10 hours

UNIT IV

ALTERNATING CURRENT : rms and average value of ac – definition and expressions, Representation of sinusoids by complex numbers (brief explanation), response of LR, CR and LCR series circuit to sinusoidal voltage – j operator method, series and parallel resonant (LR parallel C) circuits (mention condition for resonance with expressions for impedance and current), expression for Q factor, band width, AC bridge - Maxwell bridge (derivation of condition for balance , determination of self-inductance of a coil).

6 hours

THERMOELECTRICITY : Seebeck effect (brief explanation, experiment and temperature dependence), Thermoelectric series, Neutral temperature, Laws of thermoelectricity (qualitative), Peltier effect, Peltier coefficient (qualitative analysis), Thomson effect, Thomson coefficient (qualitative analysis), Theory of thermoelectric circuits using thermodynamics (Application of thermodynamics to a thermocouple and connected relations with derivation), Thermoelectric diagrams and uses (in finding the Seebeck Coefficients, Peltier coefficient, Thomson coefficient, total emf of a thermocouple, neutral temperature) Applications of thermoelectricity - Boys' Radio-micrometer, thermopile and thermoelectric pyrometer (brief explanation with experimental setup).

7 hours

PHYSICS – P302, PRACTICAL PHYSICS – III

1. To find L and C by equal voltage method

2. Energy consumption in an electrical circuit - to find power factor

3. Resonance in LCR series circuit

4. Resonance in LCR parallel circuit

5. Mirror galvanometer- figure of merit

6. High resistance by leakage using BG

7. Thermoelectric circuit - find Seebeck coefficients

8. Verification of Law of intermediate metals

9. Study of thermo emf as a heat pump

10. Load regulation of constant current source

11. Black box - identify & measure R, L and C

12. Verification of Thevenin's theorem

13. Verification of Superposition theorem

14. Verification of maximum power transfer theorem

15. Maxwell's impedance bridge

16. Desauty's bridge

17. Anderson's bridge

Syllabus for IV Sem BSc (Physics) Paper IV - PhyT401:

OPTICS and FOURIER SERIES

UNIT I

WAVE OPTICS: Huygen's wave theory of light; Huygen's principle, construction Huygen's wave front, Laws of reflection and refraction using spherical wave for at a plane surface (derivation of image distance = object distance using Huygen's construction, derivation of Snells law).

3 hours

INTERFERENCE :

Coherent sources and their production; Conditions for observing interference (mention); Conditions for constructive and destructive interference (mention)

1 hour

Coherent sources by division of wave front

Biprism-theory and working, experiment to determine wavelength; Effect of thin film in the path of one of the beams; Calculation of thickness of the   **5 hours**

Coherent sources by division of amplitude:

Interference at thin films - reflected and transmitted light, Colours of thin films; Theory of air wedge; Theory of Newton's rings (Only reflected System). Determination of Refractive index of a liquid

4 Hours

Unit - II

Diffraction - Fresnel diffraction

Concept of Fresnel's half period zones; Theory of rectilinear propagation; Fresnel diffraction, Construction and working of Zone plate; Comparison of Zone plate with lens; Cylindrical Wavefront [Half period strips – qualitative], Theory of diffraction at a straightedge

7 hours

Fraunhoffer diffraction

Theory of single slit diffraction; Theory of grating - normal and oblique incidence - Experimental determination of wavelength; Discussion of Dispersive power; Resolving power, Rayleigh's criterion; Expression for resolving power of grating and telescope; Comparison of prism and grating spectra

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6 Hours

UNIT III

Polarization

Review of plane polarized light and method of production; Double refraction at crystals; Huygens' explanation of double refraction; Theory of retarding plates - Quarter wave plates and Half wave plates; Theory of superposition of two plane polarized waves with perpendicular vibrations, Production and detection of linearly , elliptically and circularly polarized light; Optical activity - Fresnel's explanation, Laurent's half shade polarimeter.   **6 Hours**

Lasers

Introduction; Spontaneous and stimulated emission; Einstein's coefficients and optical amplification; Population inversion; Main components of a laser; Lasing action; Ruby Laser - construction and working - energy level diagram; He-Ne Laser - construction and working - energy level diagram; Spatial Coherence and directionality, estimates of beam intensity, temporal coherence and spectral energy density

7 hours

UNIT IV

Fourier Series: Periodic functions. Orthogonality of sine and cosine functions, Dirichlet Conditions (Statement only). Expansion of periodic functions in a series of sine and cosine functions and determination of Fourier coefficients. Complex representation of Fourier series (Example : Fourier Series for

(i) $f(x) = e^q$ if $-\pi < x < \pi$

(ii) $f(x) = \{ \begin{array}{l} -1 -\pi \leq x \leq 0 \\ 10 \leq x \leq \pi \end{array}$

(iii) $f(x) = x^2 \in the interval [-1, +1] \}$

Expansion of functions with arbitrary period.

[Concept of change of scale; Fourier Series for Periodic Rectangular Wave; Half – Wave rectifier; Trapezoidal wave :

$$f(x) = \{ \begin{array}{l} x, 0 \leq x \leq 1 \\ 1,1 \leq x \leq 2 \end{array}$$

$3 - x, 2 \leq x \leq 3$

)Application to Square wave, triangular Wave and Saw Tooth Wave (superposition of first three components to be shown graphically) .   **9 hours**

Optical Fibres

Optical fiber-principle, description and classification; Why glass fibers? Coherent bundle; Numerical aperture of fiber; Attenuation in optical fibers - limit Multimode optical fibers; Ray dispersion in multi-mode step index fibers;   **4 hours**

PHYSICS – P402, PRACTICAL PHYSICS – IV

1. Verification of Brewster's law

2. Refractive index of a liquid by parallax method

3. Focal length of combination of lenses separated by a distance

4. Biprism – determination of wavelength of light

5. Air wedge – determination of thickness of object

6. Newton's rings – determination of radius of curvature of lens surface

7. Newton's rings – determination of refractive index of a liquid.

8. Diffraction grating in minimum deviation position

9. Diffraction grating in normal incidence position

10. Resolving power of telescope

11. Resolving power of a grating

12. Diffraction at straight edge

13. Polarimeter – determination of specific rotation of a solution

14. Diffraction of LASER at a wire

15. Measurement of numerical aperture of an optical fibre.

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16. Fraunhoffer diffraction of LASER at single slit

17. Diffraction of LASER at graduations of a metal scale

Note: A minimum of EIGHT (8) experiments must be performed

Syllabus for V Sem. B.Sc. (Physics) Paper V – Phy T501:

STATISTICAL PHYSICS, QUANTUM MECHANICS – I, ATMOSPHERIC PHYSICS AND NANOMATERIALS

UNIT I : STATISTICAL PHYSICS (15 HOURS)

Specification of state of the system, Macro state, Micro State, Phase Space, Stirling's Approximation, Thermodynamic Probability and its calculation (Description of each with an example); Entropy and Thermodynamic probability ($S = kln\Omega$). Basic postulates of Statistical Physics ; Ensemble (Micro – canonical, canonical and grand canonical ensembles)

2 hours

Maxwell – Boltzmann Statistics : Maxwell – Boltzmann Distribution function (Derivation of $n_i = \frac{g_i}{e^{\alpha+\beta E_i}}$, Energy distribution function $f(E) = \frac{n_i}{g_i}$); Maxwell – Boltzmann law of velocity distribution

(mention- most probable velocity, average velocity, rms velocity) Limitations of M – B statistics

3 hours

Bose – Einstein Statistics : B-E distribution function (Derivation of $n_i = \frac{g_i}{e^{\alpha+\beta E_i}-1}$] Bose-Einstein

condensation properties of liquid He (qualitative) [Mention of expression of Bose Temperature T_B-Concept BE Condensation –variation of N_0 (number of particles in Zero energy state) and N_e (number of particles in non-Zero energy state) with temperature- BE condensation properties of Liquid He⁺ (Qualitative description)]

Radiation as photon gas, Bose's derivation of Planck's law, Rayleigh-Jeans law, Wein's law ; Specific Heat capacity of metals [Einstein's theory of specific heat capacity of solids – [Derivation of the equation where $\theta = h\nu/k$]   **5 hours**

Fermi – Dirac Statistics :

Fermi-Dirac distribution function; Fermi sphere and Fermi energy, Fermi gas; Electronic Specific heat Capacity in metals (Mention of the contribution to specific heat capacity from free electrons)

Comparison of Maxwell – Boltzmann, Bose – Einstein and Fermi – Dirac distribution functions
    5 hours

UNIT II : QUANTUM MECHANICS – I

Failure of Classical Physics to explain the phenomena such as stability of atom, atomic spectra, black body radiation, photoelectric effect, Compton effect and specific heat of solids, Planck's quantum theory, Explanation of the above effects on the basis of quantum mechanics

[Experimental observation, failure of classical theory, quantum mechanical explanation, Photoelectric effect -Einstein's explanation, Compton Effect – mention of expression for wavelength shift (no derivation), Specific heat of solids -Einstein's and Debye's explanation of specific heat (qualitative). Stability of atom and atomic spectra, Black body radiation [Mention of Planck's equation, arrive at Wien's and Rayleigh-Jean's equation for energy distribution from Planck's equation].   **5 hours**

de Broglie's hypothesis of matter waves (λ in terms of momentum, energy, temperature for monoatomic gas molecules]; Thomson's experiment; Davisson and Germer's experiment – normal incidence method; Concept of wave packet, Group velocity and particle velocity (relation between group velocity and particle velocity) Heisenberg's uncertainty principle - different forms; Gamma ray microscope experiment; Application to Non – existence of electron in nucleus   **10 hours**

UNIT III : ATMOSPHERIC PHYSICS

Fixed gases and variable gases; Temperature structure of the atmosphere; Hydrostatic balance, Variation of pressure with altitude, scale height; Relative and Absolute humidity
4 hours

Beer's law (derivation); Global energy balance for earth – atmosphere system, Greenhouse effect; Atmosphere dynamics –Accelerated rotational frames of reference – Centripetal and Coriolis force (derivation), Gravity and pressure gradient forces (with derivation), Applications of Coriolis force – Formation of trade winds, cyclones, erosion of river banks **6 hours**

NANOMATERIALS

Nanomaterials – Introduction, classification – (0D, 1D, 2D), Quantum dots, nanowires and nanofilms, Multilayered materials- Fullerene, Carbon Nano Tube (CNT), Graphene (Mention of structures and properties); Synthesis techniques (Top down- Explanation of Milling & bottom up - Sol gel process). Characterisation techniques- (brief description of SEM, TEM, AFM).

Electron confinement (0D, 1D, 2D- energy levels as a particle in a box); Size effect-Surface to volume ratio; distinction between nanomaterials and bulk materials in terms of energy band. Distinct properties of nano materials (Mention- optical, electrical, mechanical and magnetic properties);

Mention of applications: (Fuel cells, catalysis, phosphors for HD TV, next generation computer chips, elimination of pollutants, sensors) **5 hours**

PHYSICS – P502, PRACTICAL PHYSICS – V(A)

1. Applications of CRO in the (a) study of Lissajous figures (b) calculation of rms voltage (c) calculation of frequency of AC. **(Mandatory)**

2. Monte Carlo experiment & error analysis

3. Verification of Maxwell's distribution of velocity

4. Maxwellian distribution of velocities for electron using EZ81vacuum diode

5. Dice experiment – to study statistical nature of results

6. Study of statistical distribution on nuclear disintegration data (using GM counter as a black box)

7. Characteristics of a photo cell-determination of stopping potential.

8. Determination of Planck's constant.

9. Characteristics and spectral response (selenium photocell)

10. Determination of particle size using XRD Scherer's formula.

11. Temperature of atmospheric air - by using Thermograph (Bimetallic type)- Plotting the graph of temperature Vs time.

12. Relative humidity using hair hygrometer

13. Estimation of relative humidity using wet and dry bulb thermometer

14. Wind speed and direction by Hand held anemometer and wind wane

15. Estimation of height from the given pressure data

16. Regulated power supply (using zener diode).

17. Determination of transistor h-parameters.

18. Frequency response of a CE amplifier.

19. Transistor as a switch and active device.

20. Construction of RFO or AFO - using transistor

21. Emitter follower

Note: A minimum of EIGHT experiments must be performed.

Syllabus for V Sem. B.Sc. (Physics) Paper VI – Phy T503:

ASTROPHYSICS, SOLID STATE PHYSICS AND SEMICONDUCTOR PHYSICS

UNIT-I : ASTROPHYSICS (15 hours)

Parallax and distance: Helio-centric parallax, Definition of parsec (pc), Astronomical unit (AU), light year (ly) and their relations.

Luminosity of stars: Apparent brightness, Apparent magnitude - scale of Hipparchus. Absolute magnitude - distance - modulus relationship. Distinction between visual and bolometric magnitudes, Radius of a star.   **3 hours**

Stellar classification: Pickering classification and Yerke's luminosity classification. H-R diagram, Main sequence stars and their general characteristics.

Gravitational potential energy or self energy of a star based on the linear density model, Statement and explanation of Virial theorem.

Surface or effective temperature and color of a star : Wien's displacement law. Expressions for - average temperature, core temperature, hydrostatic equilibrium, core pressure of a star based on the linear density model of a star. Photon diffusion time (qualitative), Mass – Luminosity relationship and expression for lifetime of a star.

7 hours

Evolution of stars: Stages of star formation (GMC – Protostar- T-Tauri) and main sequence evolution, White dwarfs, Pulsars, Neutron stars and Black holes, Variable stars, Supernova explosion- its types, Chandrasekhar limit. Event Horizon, Singularity, Schwarzchildradius (qualitative)

5Hours

Unit-2: Solid State Physics (15 hours)

Crystal systems and X-rays: Crystal systems-Bravais lattice; Miller indices– Spacing between lattice planes of cubic crystals, Continuous and characteristic X-ray spectra; Moseley's law, Scattering of X-rays - Compton effect, Bragg's law.   **6hours**

Free electron theory of metals : Electrical conductivity- classical theory (Drude-Lorentz model); Thermal conductivity; Wiedemann - Franz's law; Density of states for free electrons (with derivation); Fermi-Dirac distribution function and Fermi energy; Expression for Fermi energy and Kinetic energy at absolute zero(derivation). Hall Effect in metals

6 Hours

Superconductivity : Introduction – Experimental facts – Zero resistivity – The critical field – The critical current density – Meissner effect, Type I and type II superconductors– BCS Theory (qualitative); Applications - SQUIDs.   **3 hours**

Unit-3: Semiconductor Physics

Distinction between metals, semiconductors and insulators based on band theory. Intrinsic semiconductors - concept of holes – effective mass - expression for carrier concentration(derivation for both holes and electrons) and electrical conductivity – extrinsic semiconductors – mention of expressions for carrier concentrations and conductivity – impurity states in energy band diagram.

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and the Fermi level.

Formation of P-N junction, depletion region, Biased P-N junction, variation of width of the depletion region, drift and diffusion current –expression for diode current.

6 hours

Special Diodes: Zener diode – characteristics and its use as a voltage regulator.

Photo diodes, Solar cells and LED (principle, working and applications). **4 hours**

Transistors: Transistor action, Characteristics (CE mode), DC Biasing , Load line analysis (Operating Point, Fixed Bias – Forward bias of Base – Emitter, collector – emitter loop, transistor saturation, Load line analysis ; Voltage divider bias – Transistor saturation, Load line analysis)

Transistor as an amplifier(CE mode); . H-parameters **5 hours**

PHYSICS – 504, PRACTICAL PHYSICS – V(B)

1. Parallax Method – Distance of objects using trigonometric parallax.
2. HR Diagram & the physiMisra and Misra, Physics Lab. Manual, South Asian publishers (**2000**)
3. Gupta and Kumar, Practical physics, Pragati prakashan, (**1976**)
4. Ramalingom & Raghuopalan : A Lab. Course in Electronics
5. Bharagav et al : Electronics, TTI tata MacGraw Hill 33rd Reprint (**2002**)cal properties of stars.
6. Analysis of stellar spectra.
7. Determination of temperature of a star (artificial) using filters.
8. Analysis of sunspot photographs & solar rotation period.
9. Mass luminosity curve – Estimation of mass of a star.
10. Mass of binary stars.
11. Resistivity of a material by four probe method.
12. Determination of Lorentz Number
13. Semiconductor temperature sensor.
14. Temperature coefficient of resistance and energy gap of thermistor.
15. LED characteristics and spectral response.
16. LDR characteristics – dark resistance – saturation resistance.

17. Solar cell characteristics – Open circuit voltage – short circuit current – efficiency.

18. Study of Hall effect in a metal.

19. Characteristics of LASER diode.

20. Spectral response of a photodiode and its I – V characteristics.

21. Analysis of X-ray diffraction pattern obtained by powder method to determine properties of crystals.

22. Determination of Fermi energy of a metal.

23. Determination of thermal conductivity of a metal by Forbe's method.

24. Measurement of heat capacity of metals.

Note: A minimum of EIGHT experiments must be performed.

Syllabus for VI Sem. B.Sc. (Physics) Paper VII – Phy T601:

ATOMIC, MOLECULAR AND NUCLEAR PHYSICS

UNIT I : ATOMIC AND MOLECULAR PHYSICS (15 HOURS)

Vector Model of the Atom

Review of Bohr's theory of hydrogen atom, Sommerfeld's modification of the Bohr atomic model (qualitative). Spatial quantization and spinning electron. Different quantum numbers associated with the vector atom model, Spectral terms and their notations, Selection rules, Coupling schemes(l-s and j-j coupling in multi electron systems), Pauli's Exclusion Principle, Expression for maximum number of electrons in an orbit. Spectra of alkali elements (sodium D-line), Larmor precession, Bohr magneton, Stern-Gerlach Experiment . Zeeman Effect- Experimental study, theory of normal and anomalous Zeeman effect based on quantum theory.   **10 hours**

Molecular Physics: Pure rotational motion, Spectrum and selection rules; Vibrational motion, vibrational spectrum and selection rules; Rotation-Vibration spectrum; Scattering of light-Tyndall scattering, Rayleigh scattering and Raman scattering. Experimental study of Raman effect, Quantum theory of Raman effect - Applications .   **5 hours**

UNIT II : RADIOACTIVE DECAY, DETECTORS AND ACCELERATORS (15 HOURS)

Alpha particle scattering : Rutherford's theory of alpha scattering (assuming the path to be hyperbolic)   **2 hours**

Radioactive Decay : Laws of radioactive decay, half – life, mean life, decay constant; theory of successive disintegration (expression for number of atoms of nth element in the chain – Bateman equations); radioactive equilibrium (secular and transient - cases of long lived parent, short lived parent, daughter and parent of nearly equal half – life).

3 hours

Alpha decay : Range and energy, Geiger- Nuttal law , Characteristics of alpha spectrum, Gamow's theory of alpha decay [Barrier height, tunneling effect, $\lambda=Pf$ f is the frequency of collision of nucleon with the potential barrier; P is the probability of transmission through the barrier); Barrier

penetrability factor (p)e $^{-\frac{\sqrt{2\mu}}{\hbar}\int_{r_0}^{r_1}\sqrt{V(r)-E}\,dr}$ (no derivation)]

Derivation of Q-value-of alpha decay; Exact energy of alpha particle emitted

3 hours

Beta decay : Types of beta decay (electron, positron decay and electron capture) Characteristics of beta spectrum and Pauli's neutrino hypothesis **2 hours**

Detectors : Variation of ionization current with applied voltage in a gas counter, Proportional counter, GM Counter (Construction, working, characteristics, efficiency and quenching)

3 hours

Particle accelerators : Linear accelerator, Cyclotron, Betatron **2 hours**

UNIT III : NUCLEAR REACTIONS AND PARTICLE PHYSICS

NUCLEAR REACTIONS : Types of reactions, Conservation laws in nuclear reactions with examples, derivation of Q – value for reactions using the energy – momentum conservation, exoergic and endoergic reactions, threshold energy , reaction rate, reaction cross – section, concept of direct and compound reactions, resonance reaction; Power reactors

8 hours

ELEMENTARY PARTICLES : Classification of elementary particles, Fundamental interactions (Gravitational, Electromagnetic, Weak, strong – range, relative strength, particle interactions for each);

Symmetries and Conservation Laws (momentum, energy, charge, parity, lepton number, baryon number, isospin, strangeness and charm); Concept of Quark Model, Color quantum number and gluons; **7 hours**

1. Principles of Modern Physics, A.P. French, John Wiley, London (1958).
2. Modern Physics - S.N. Ghoshal, Part 1 and 2 S. Chand and Company (1996).
3. Physics of the Atom, Wehr et. al. McGraw Hill
4. Atomic and Nuclear Physics, S. N. Ghoshal: Vol. II. (2000).
5. Alpha, beta and gamma spectroscopy, K. Seighbahn: Vol. I and II, John Wiley (1967)
6. Introductory nuclear Physics by Kenneth S. Krane (Wiley India Pvt. Ltd., 2008).
7. Nuclear Physics, D.C Tayal, Himalaya Publishing House, 5th Edition

8. Concepts of nuclear physics by Bernard L. Cohen. [Tata Mcgraw Hill, 1998].

9. Introduction to the physics of nuclei & particles, R.A. Dunlap. (Thomson Asia, 2004)

10. Introduction to Elementary Particles, D. Griffith, John Wiley & Sons 2nd revised ed (2008)

11. Quarks and Leptons, F. Halzen and A.D. Martin, Wiley India, New Delhi(2008)

12. Basic ideas and concepts in Nuclear Physics - An Introductory Approach by K. Heyde (IOP-Institute of Physics Publishing, (2004).

13. Radiation detection and measurement, G.F. Knoll (John Wiley & Sons, (2000).

14. Theoretical Nuclear Physics, J.M. Blatt & V.F.Weisskopf (Dover Pub.Inc., (1991)

PHYSICS – 602, PRACTICAL PHYSICS – VI(A)

1. Study of hydrogen spectrum.

2. Sommerfeld's fine structure constant determination.

3. Determination of e/m by Thomson's method.

4. Characteristics of GM counter.

5. Determination of half-life of K^{40}.

6. Millikan's Oil drop experiment

7. Analysis of band spectrum of PN molecule.

8. Analysis of rotational spectrum of nitrogen.

9. Analysis of rotational vibrational spectrum of a diatomic molecule (HBr).

10. Absorption spectrum of $KMnO_4$.

11. B – H Curve using Oscilloscope

12. Verification of Curie – Weiss Law

13. To verify and design AND, OR, NOT and XOR gates using NAND gates

14. To convert a Boolean Expression into Logic Gate Circuit and assemble it using logic gate ICs.

15. Digital Half-adder & Full-adder circuits using logic gate ICs.

16. Half Subtractor & Full Subtractor, using logic gate ICs

Note : A minimum of EIGHT experiments must be performed.

Syllabus for VI Sem. B.Sc. (Physics) Paper VIII – Phy T603:

ELECTRONICS, MAGNETIC MATERIALS, DIELECTRICS AND QUNTUM MECHANICS – II

UNIT I : OPAMPS

Operational amplifiers

Block Diagram of an OPAMP, Characteristics of an Ideal and Practical Operational Amplifier (IC 741), Open loop configuration - Limitations, Gain Bandwidth Product, Frequency Response, CMRR, Slew Rate and concept of Virtual Ground   **2 hours**

Feedback concepts, Advantages of feedback, types of feedback, Expression for Gain; OPAMP as a feedback amplifier – Non – Inverting and Inverting amplifier, Modification of input and output impedances with feedback ; Voltage follower; Differential amplifier with feedback;

2 hours

Linear Applications - frequency response of Low pass, high pass and band pass filters (first order), inverting summing amplifier, ideal Differentiator, Integrator;   **2 hours**

OPAMP Oscillators
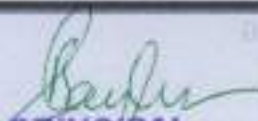
Positive Feedback concept - oscillator operation –Barkhausen Criterion; Types of oscillator circuits (Qualitative); Phase shift oscillator and Wien bridge oscillator (using op amp).

2 hours

DIGITAL ELECTRONICS

Number Systems : binary, octal, hexadecimal (interconversions); Number codes : BCD, Gray Code (conversions to other systems); Signed Numbers; Arithmetic using Radix and Radix -1 complement.

2 hours

Logic gates and truth tables : OR gate, AND gate; Inverter (the NOT function); NAND and NOR; exclusive OR; exclusive NOR.   **1 hour**

Boolean laws and theorems – simplification of SOP equations; Realization of AND, OR, NOT using universal gates NAND and NOR;   **2 hours**

Combination logic: Adders (full and half adder) and Subtractors (half)   **2 hours**

UNIT II – Magnetic Properties of Matter and Dielectrics

Magnetic Properties of Matter

Review of basic formulae : Magnetic intensity, magnetic induction, permeability, magnetic susceptibility, magnetization (M), Classification of Dia – , Para –, and ferro – magnetic materials;

3 hours

Classical Langevin Theory of dia – and Paramagnetic Domains. Quantum Mechanical Treatment of Paramagnetism. Curie's law, Weiss's Theory of Ferromagnetism and Ferromagnetic Domains. Discussion of B-H Curve. Hysteresis and Energy Loss, Hard and Soft magnetic materials

5 hours

Dielectrics : Static dielectric constant, polarizability (electronic, ionic and orientation), calculation of Lorentz field (derivation), Clausius-Mosotti equation (derivation), dielectric breakdown, electrostriction (qualitative), electrets. Piezo electric effect, cause, examples and applications.
7 hours

UNIT-III : Quantum mechanics-II

The concept of wave function, physical significance of wave function. Development of time dependent and time independent Schrodinger's wave equation. Max Born's interpretation of the wave function. Normalization and expectation values, Quantum mechanical operators, Eigen values and Eigen functions. Applications of Schrodinger's equation – free particle, particle in one dimensional box- derivation of Eigen values and Eigen function – extension to three dimensional box; Development of Schrodinger's equation for One dimensional Linear harmonic oscillator, Rigid rotator, Hydrogen atom – mention of Eigen function and Eigen value for ground state.

15 hours

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2004PHYSICS – 604, PRACTICAL PHYSICS – VI(B)

1. Low pass filter using Op-amp

2. High pass filter using Op-amp

3. Band pass filter using Op-amp

4. Op-amp inverting and non – inverting amplifier – ac or dc

5. OPamp as a differential amplifier – COMMON MODE AND DIFFERENTIAL MODE

6. Op-amp-summing amplifier – ac and dc,

7. OPamp as integrator and differentiator.

8. Phase shift oscillator using op –amp

9. Wien-bridge Oscillator using op – amp

10. To design an Astable Multivibrator of given specifications using 555 Timer

    11. Determination of dielectric constant.

12. Determination of dipole moment of organic liquid

13. Verification of inverse square law using GM counter (with a radioactive source).

14. Determination of mass absorption coefficient of gamma rays.

Note : A minimum of EIGHT experiments must be performed.

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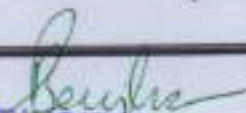
BANGALORE UNIVERSITY

PROPOSED CURRICULUM IN ZOOLOGY FOR
B.Sc. (UG)
(I to VI SEMESTERS)

CBCS 2018-19 and Onwards

BANGALORE UNIVERSITY

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PROPOSED CURRICULUM IN ZOOLOGY FOR B. Sc. (UG) 2018-19 Onwards
DEPARTMENT OF ZOOLOGY
JNANABHARATHI CAMPUS, BANGALORE-56
BANGALORE UNIVERSITY

THEORY

Sem	Paper Code	Title of the paper	Total number Of hours	Hours /week	Marks	Internal Assessment*	Total Marks
I	Paper-I	Non Chordata-I	52	04	70	30	100
II	Paper-II	Non Chordata-II	52	04	70	30	100
III	Paper-III	Chordata	52	04	70	30	100
IV	Paper-IV	Comparative anatomy, Human anatomy, Cell Biology and Histology	52	04	70	30	100
V	Paper-V	Environmental Biology and Ethology	40	03	70	30	100
	Paper-VI	Genetics and Biotechnology	40	03	70	30	100
VI	Paper-VII	Developmental biology and Organic Evolution	40	03	70	30	100
	Paper-VIII	Animal Physiology and Techniques in Biology	40	03	70	30	100

Internal Assessment marks*- 30

PRACTICAL

Sem	Paper Code	Title of the paper	Total number Of hours	Hours/ week	Marks	Internal Assessment*	Total Marks
I	Paper-I	Non Chordata-I	45	03	35	15	50
II	Paper-II	Non Chordata-II	45	03	35	15	50
III	Paper-III	Chordata	45	03	35	15	50
IV	Paper-IV	Comparative anatomy, Human anatomy, Cell biology and Histology	45	03	35	15	50
V	Paper-V	Environmental Biology and Ethology	45	03	35	15	50
	Paper-VI	Genetics and Biotechnology	45	03	35	15	50
VI	Paper-VII	Developmental biology and Organic Evolution	45	03	35	15	50
	Paper-VIII	Animal Physiology and Techniques in Biology	45	03	35	15	50

Internal Assessment marks*- 15

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BANGALORE UNIVERSITY

DEPARTMENT OF HISTORY

REVISED SYLLABUS FOR THE BA/BA(HONS)
CREDIT BASED SEMESTER SCHEME

WITH EFFECT FROM THE ACADEMIC YEAR 2014-15

BA/BA(HONS) CREDIT BASED SEMESTER SCHEME SYLLABUS
HISTORY w e f 2014-15

BANGALORE UNIVESITY

BA/BSC
SYLLABUS 2014

BANGALORE UNIVESITY
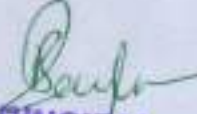**DEPARTMENT OF PSYCHOLOGY**
Jnanabharathi Campus, Bangalore-560 056.

The BOS meeting held on 16th June 2014 at the department of psychology approved the UG Syllabus. Following is the framework of the syllabus for the six semesters for BA/BSc with psychology as one of the optional subjects.

Semester	Paper Title	Number of units	Number of hours	Number of credits
I	Basic psychological processes I	5	50	2
I	Practicals I		3/week	1
II	Basic psychological processes II	5	50	2
II	Practicals II		3/week	1
III	Child Psychology I Or Developmental Psychology I	5	50	2
III	Practicals III		3/week	1
IV	Child Psychology II Or Developmental Psychology II	5	50	2
IV	Practicals IV		3/week	1
V *	Counseling Psychology I Or Health psychology I Or Social Psychology I Or Industrial & Organizational psychology I Or Educational Psychology I Or Abnormal Psychology I	4	40	2 X 2 = 4
Practical V & Practical VI			3 X 2/week	2
	Counseling Psychology II Or Health psychology II Or Social Psychology II Or Industrial & Organizational psychology II Or Educational Psychology II Or Abnormal Psychology II	4	40	2 X 2 = 4
Practical VII & Practical VIII			3 X 2/week	2

*V & VI sem any two papers out of the six electives are to be offered.

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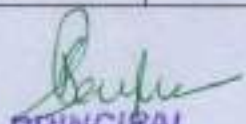APS College of Arts & Science
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FACULTY OF ARTS

DEPARTMENT OF POLITICAL SCIENCE

REVISED SYLLABUS FOR THE BA CHOICE BASED CREDIT SYSTEM (SEMESTER SCHEME)

WITH EFFECT FROM THE ACADEMIC YEAR 2014-2015

BA CHOICE BASED CREDIT SYSTEM (SEMESTER SCHEME)

SYLLABUS, POLITICAL SCIENCE w.e.f 2014-2015

SI NO	SEMESTERS I SEMESTER	TITLE OF PAPER	Page no
1.	PAPER - 1	Core Concepts of Political Science	1
	II SEMESTER		
2.	PAPER - 2	Understanding Political Theory	2
	III SEMESTER		
3.	PAPER - 3	Public Administration: Core Concepts	3
	IV SEMESTER		
4.	PAPER - 4	Western and Eastern Political Thought	4
	V SEMESTER		
5.	PAPER 5.1	Indian Constitution: Institutional Framework	5
6.	PAPER 5.2	International Politics	6
	VI SEMESTER		
7.	PAPER 6.1	Major Constitutional Systems	7
8.	PAPER 6.2	International Institutions and Foreign Policies	8

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BANGALORE UNIVERSITY

FACULTY OF ARTS

DEPARTMENT OF SOCIOLOGY

REVISED SYLLABUS FOR THE B A / B A (HONS) CREDIT BASED CHOICE SYSTEM: SEMESTER SCHEME

WITH EFFECT FROM THE ACADEMIC YEAR 2014-2015

Proceedings of the Board of Studies (UG) in Sociology held on 20th and 21st June 2014 in the department of Sociology, Bangalore University, Bangalore.

Members Present:

1. Dr. B C Mylarappa,	Professor & Chairman	
2. Sri. Revannasiddaiah,	Member	
3. Prof. Nishath Khalida Parveen	Member	
4. Prof. Kanakalakshmi	Member	
5. Prof. Renuka B	Member	
6. Prof. Raphel	External Member	
7. Sri. Shivalingaiah	Special Invitee	
8. Sri. Rangaswamy	Special Invitee	

Members Absent:

1. Dr. M K Srikantaiah, Member (Retired)
2. Prof. Savithri Devi, Member (Retired)
3. Prof. Kumar, External Member

The Chairman welcomed the members and briefed about the need of revising the syllabi according to the new structure of Choice Based Credit System and other issues as per the agenda. Following items were discussed and resolved.

Agenda & Resolution:

Item no. 1. Revision of syllabi according to CBCS structure:

The Syllabi for the Under Graduate courses in Sociology were approved for the six semesters as per the following titles:

Papers	TITLE OF THE PAPER	Instruction Hrs/ Week	Duration of Exam (hrs)	Marks THEORY	IA	TOTAL	CREDITS
		I, II, III & IV semesters					
1	Fundamentals of Sociology	1 x 5	1 x 3	100	50	150	1 x 3
2	Social Institutions	1 x 5	1 x 3	100	50	150	1 x 3
3	Sociology of Mass Media & Communication	1 x 5	1 x 3	100	50	150	1 x 3
4	Anthropology	1 x 5	1 x 3	100	50	150	1 x 3
		V semester					
5	Women in India	1 x 5	1 x 3	100	50	150	1 x 3
6	Sociology of Health & Medicine	1 x 5	1 x 3	100	50	150	1 x 3
		VI semester					
7	Research Methods & Statistics	1 x 4	1 x 3	100	50	150	1 x 3
8	Current Social Problems	1 x 4	1 x 3	100	50	150	1 x 3

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Bangalore University

BA Music Syllabus (CBCS)

For the year 2014-15

Common for

The Departments of Music

APS College of Arts and Science &

Maharani's college

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CBCS syllabus pattern

SI No.	Core subject Music papers	Hours per week	Theory marks IA	Theory Exam marks	Practical marks IA	Practical exam marks	Total Marks	Duration of examination	Credit
1	I BA – Ist Sem	4 + 2 Practicals + Theory	15	35	30	70	150	2 hours	6
2	I BA – 2nd Sem	4 + 2 Practicals + Theory	15	35	30	70	150	2 hours	6
3	II BA – 3rd Sem	4 + 2 Practicals + Theory	15	35	30	70	150	2 hours	6
4	II BA – 4th Sem	4 + 2 Practicals + Theory	15	35	30	70	150	2 hours	6
5	III BA – 5th & 6th Sem	8+4 Practicals + Theory	30	70	60	140	300	2 hours	12
6	III BA – 7th & 8th Sem	8+4 Practicals + Theory	30	70	60	140	300	2 hours	12
7	IV BA – 9th & 10th Sem	8+4 Practicals + Theory	30	70	60	140	300	2 hours	12
8	IV BA – 11th & 12th Sem	8+4 Practicals + Theory	30	70	60	140	300	2 hours	12
		60 hours							72

1ST B.A. MUSIC - 2ND SEMESTER

Max. Marks – Theory - 35 + internal assessment - 15 = 50 Marks

Number of Students per Batch - 4 candidates

Hours of work Per week - 4 Hrs Practicals + 2 Hr Theory

THEORY

ELEMENTS OF MUSIC

01. Study of the scheme of 72 melas

02. Application of Katapayadi Sutra for the scheme of 72 Melas.

03. Lakshanas of the following musical Compositions :

Sanchari Geetha and Lakshana Geetha , Jatisawara and Swarajathi ,

Tanavarna, Krithi and Kirthana.

04. Biographies of the following composers and their contributions to Karnataka Music

Shri Purandara Dasaru ,Shri Shyama Shastry , Shri Thyagarajaru , Shri Muttuswami Dikshitar.

05. Lakshanas of the following ragas in detail [Studied under Practical Course]

Kharaharapriya , Hindola , Shudda Saveri , Kalyani.

PRACTICALS

Max Marks – Practicals – 70 + internal assessment – 30 = 100 marks

2nd SEM 2nd PAPER

01. Swarajathi – 1 (Harikambhoji)

02. Lakshana geethe – 1

03. Adi Tala Varna – 1 [Vasantha , Shri]

04. Madhyama Kala Kritis – 2 and Vilamba kala kriti - 1

Kharaharapriya , Hindola , Shuddha saveri , Kalyani

05. Kanakadasara Devaranama & Vachana

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1st BA 1st SEM – **ELEMENTS OF MUSIC**

Number of students per batch – 4 candidates

Hours of work per week   -- 4 Hrs .Practicals + 2 Hrs. Theory.

MAX. MARKS – Theory - 35 + internal assessment - 15 = 50 Marks

01. Role of Music in life.
02. Detailed explanation and definitions of the following musical terms:
    Adhara shruti , Nadotpathi ,Ahata,and Anahata nada, Swara,
    Sthayi,Poorvanga and Uttaranga,Dhatu and Mathu,Akshara kala and
    Mathra kala , Anya swara,Avarta and Sangati.
03. Study of suladi Sapta Talas
04. Origin of Raga , Raga Classifications into Janaka , Janya , Raganga ,
    Upanga and Bhashanga ragas, Krama and Vakra Raaga.
05. Lakshanas of the following Ragas in detail [Studied under Practical
    course]
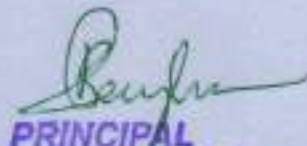   Mayamalavagowla , Hamsadhwani , Simhendramadhyama , Shriranjini.

PRACTICALS

MAX. MARKS – Practicals – 70 + internal assessment – 30 = 100 marks

1st BA 1st SEM

01. Alankaras in 3 speeds and Ghana raga geete 1
02. Lakshana gheete – 1 & Jathiswara – 1
03. Aditala varna- 1
04. Madhyama kala Kritis

Mayamalavagowla , Hamsadhwani , Simhendramadhyama , Shriranjini

05. Purandara dasara Devara nama – 1

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THEORY

2nd B.A. MUSIC - 4TH SEMESTER

Max. Marks – Theory - 35 + internal assessment - 15 = 50 Marks

Number of students per batch – 4 candidates

Hours of work per week   -- 4 Hrs .Practicals + 2 Hrs. Theory.

PRINCIPLES OF MUSIC

1. Gayaka Gunadoshas.
2. Scheme of 175 talas.
3. Biographies of the following composers and their contributions to Karnataka Music - Patnam Subramanya Iyer, Mysore Sadashiva Rao, Mysore Vasudevacharya , Dr.Muthaiah Bhagavathar.
4. Mudras figuring in musical compositions
5. Lakshana of the following ragas in detail
   Arabhi , Madhyamavathi , Vachaspathi , Dheera Shankarabharana.

Max Marks – Practicals – 70 + internal assessment – 30 = 100 marks

01.Aditala Varna – Natakuranji in 1 speed

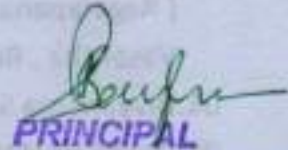02.Atatala Varna – Shankarabharana in 1 speed

03.Madhyama Kala Kritis – 3 , Vilamba Kala Kritis – 1

[Ragalapana and Swarakalpana]

Arabhi , Madhyamavathi , Vachaspathi , Dheera Shankarabharana.

04.Bhajan & Devaranama – 1 each

05.Janapadageete / folk song - 1

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2nd BA 3RD SEM – **PRINCIPLES OF MUSIC**

Max. Marks – Theory - 35 + internal assessment - 15 = 50 Marks

Number of students per batch – 4 candidates

Hours of work per week   – 4 Hrs .Practicals + 2 Hrs. Theory.

1. Music in general. Two different systems of Indian music .
2. Comparitive Study of Karnatak and Hindusthani Music in brief , Special features of Karnatak Music
3. Scheme of 35 talas
4. Detailed explanation and definitions of the following fundamental technical terms in music

    Noise and Musical Sound , Frequency of a note , Pitch of a note , Intensity of a note , Timbre , Sympathetic Vibration , Echo , Melody , Harmony.

5. Lakshana of the following ragas in detail

    Vasantha , Bilahari , Shanmukhapriya , Mohana.

PRACTICALS 3

Max Marks – Practicals – 70 + internal assessment – 30 = 100 marks

01. Swarajati – 1 (Hamsadhwani)
02. Aditala Varna [Kalyani , Abhogi – in two speeds]
03. Madhyama Kala Kritis – 3 , Vilamba Kala Kritis – 1

    [Ragalapana and Swarakalpana]

    Vasantha , Bilahari , Shanmukhapriya , Mohana
04. Divyanama Sankeerthana – 2
05. Desha Bhakthigeete / patriotic song – 1

3rd B.A. MUSIC - 5TH SEMESTER

Max. Marks – Theory - 35 + internal assessment - 15 = 50 Marks

Number of students per batch – 4 candidates

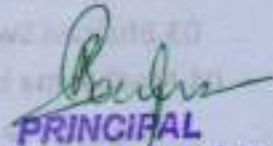Hours of work per week   – 4 Hrs .Practicals + 2 Hrs. Theory.

Introduction to musicology

1. Study of Gamaka and the two schools thereof
2. Musical prosody
3. Critical and comparative study of the contributions of the following composers to Karnatak music – Sri.Shyamashastry, Sri.Thyagaraja and Sri.Muttuswamy Dikshithar
4. Temples and Music
5. Detailed study of Lakshanas of the following ragas with sancharas – Kamach, Malaya Marutha, Amrutha Varshini and Charukeshi

PRACTICALS

Max Marks – Practicals – 70 + internal assessment – 30 = 100 marks

1. Navaraga Malika Varna – in 2 speeds
2. Atatala Varna – Shankarabharana in 2 speeds
3. Madhyama Kala Kritis – 3 , Vilamba Kala Kritis – 1
   [Ragalapana and Swarakalpana for all the Kritis]
   Kamach, Malaya Marutha, Amrutha Varshini and Charukeshi
4. Utsava Sampradaya Kriti – 1
5. Divyanama sankeerthana - 1

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3rd B.A. MUSIC - 6TH SEMESTER

Max. Marks – Theory - 35 + internal assessment - 15 = 50 Marks
Number of students per batch – 4 candidates
Hours of work per week   -- 4 Hrs .Practicals + 2 Hrs. Theory.

THEORY

History of Indian Music

1. Contributions of following haridasas to the development of Karnatak music – Sri padarajaru, Sri vyasarayaru, Sri Gopaladasaru, Sri Purandara dasaru
2. Lakshanas of the following compositions – Ragamalika, Ashtapadi, Javali, Tharanga and Thillana
3. Influence of western music on Indian music
4. Biographies of the following composers and their contributions to Karnataka Music – Maha vaidyanatha Iyer, Veene Sheshanna, Jayadeva and Jaya chamaraja Wodeyar.
5. Detailed study of Lakshanas of the following ragas with sancharas – Kamavardhini, Kambhoji, Saraswathi and Hamsanada

PRACTICALS

Max Marks 100 marks – (Practicals – 70 + internal assessment – 30)

01.   Jathi swara – Thodi – 1
02. Divya nama Sankeerthana & utsava sampradaya kriti – 1 each
03. Bhairavi Swara jathi of Sri.shyamashastri- Bhairavi – 1
04. Madhyama kala kriti – 3 Vilamba kala kriti – 1
      Ragalapana and Swarakalpana for all the Kritis
      Kamavardhini, Kambhoji, Saraswathi and Hamsanada
05. Thillana – 1

THEORY

3rd B.A. MUSIC - 7TH SEMESTER

Max. Marks – 50 marks (Theory - 35 + internal assessment – 15)
Number of students per batch – 4 candidates
Hours of work per week — 4 Hrs .Practicals + 2 Hrs. Theory.

Introduction to Musicology

1. Development of Indian Music in different stages
2. Methods adopted in South Indian music concerts
3. Musicography or notation adopted in writing music
4. Biographies of the following composers and their contributions to Karnataka Music – Veene Subbanna, Narayana Theertharu, Bidaram Krishnappa and Kshetrajna
5. Detailed study of Lakshanas of the following ragas with sancharas – (Kaanada, Purvi kalyani, Chakravaka, Abheri)

PRACTICALS

Max Marks 100 marks – (Practicals – 70 + internal assessment – 30)

1. Jhampe tala varna – 1 in 2 speeds
2. Mutuswamy Dikshithar's Navagraha kriti – 1
3. Madhyama kala kriti – 3 Vilamba kala kriti – 1 (Ragalapana and Swarakalpana for all the Kritis) Kaanada, Purvi kalyani, Chakravaka, Abheri
4. Ashtapadi – 1
5. Bhavagite / Lyrics - 1

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THEORY

3rd B.A. MUSIC - 8TH SEMESTER   MAX. MARKS – 40

Max. Marks – 50 marks (Theory - 35 + internal assessment – 15)
Number of students per batch – 4 candidates
Hours of work per week   – 4 Hrs .Practicals + 2 Hrs. Theory.

Introduction to Musicology

1. Contribution of following haridasas to the development of Karnatak Music – Sri Kanaka dasaru ,Sri.Vadirajaru, Sri.Vijayadasaru, Sri.Jagannatha dasaru.
2. Manodharma sangeeta – A brief study of ragalapana and swara kalpana.
3. Classification of musical instruments – Method of tuning tambura
4. Biographies of the following composers and their contributions to Karnataka Music – Karigiri rao , venkatagiriyappa , Swathi Thirunal, Chowdaiah
5. Detailed study of Lakshanas of the following ragas with sancharas – Gowri manohari, Abhogi, Kedara gowla, Mohana kalyani

PRACTICALS

Max Marks 100 marks – (Practicals – 70 + internal assessment – 30)

1. Muthuswamy Dikshithar's – Nottu swara sahitya- 2
2. Pancharathna krithis – 1
3. Navarathri krithi – Arabhi – 1
4. Madhyama Kala Kritis – 3 , Vilamba Kala Kritis – 1
   [Ragalapana and Swarakalpana for all the Kritis]
   Gowri manohari, Abhogi, Kedara gowla, Mohana kalyani
5. Tharanga – 1

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THEORY

4th B.A. MUSIC - 9TH SEMESTER   MAX. MARKS - 40

Max. Marks – 50 marks (Theory - 35 + internal assessment – 15)
Number of students per batch – 4 candidates
Hours of work per week   – 4 Hrs .Practicals + 2 Hrs. Theory.

Sangeeta Shastra – 1

1. Place of Music in Life – Its Social, Cultural and Spiritual values
2. Geographical factors in Life
3. Brief study of the following lakshana granthas – Natya shastra, Brihaddeshi, Chaturdandi prakashika and Sangeeta Ratnakara.
4. Writing notation for any one Adi tala varna or Madhyama kala kriti
5. Detailed study of Lakshanas of the following ragas with sancharas – Bhairavi, Valachi, Nagaswaravali, Pushaplathika and Keeravani

PRACTICALS

Max Marks 100 marks – (Practicals – 70 + internal assessment – 30)

1. Muthu swamy Dikshithar's Navavarna krithi – 1
2. Swathi Thirunal's Ragamalika – Bhavayami
3. Madhyama Kala Kritis – 4 , Vilamba Kala Kritis – 1
   Ragalapana and Swarakalpana for all the Kritis -
   Bhairavi, Valachi, Nagaswaravali, Pushaplathika and keeravani
4. Javali – 1
5. Ashtapadi - 1

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THEORY

4th B.A. MUSIC - 10ᵀᴴ SEMESTER   MAX. MARKS - 40

Max. Marks – 50 marks (Theory - 35 + internal assessment – 15)
Number of students per batch – 4 candidates
Hours of work per week   – 4 Hrs .Practicals + 2 Hrs. Theory.

Sangeeta Shastra – 2

1. Contribution of folk music to Karnatak music
2. Chapu tala and its varities
3. Music Therapy
4. Biographies of the following vachana composers and their contributions to Karnataka Music – Allama prabhu, Sarpabhushana Shivayogi, Akka Mahadevi, Basavanna
5. Detailed study of Lakshanas of the following ragas with sancharas – Garudadhwani, Kalyana vasantha, Hemavathi, Mandari, Ananda Bhairavi

PRACTICALS   MAX. MARKS – 60

Max Marks 100 marks – (Practicals – 70 + internal assessment – 30)

1. Ata tala varna – Kaanada in 2 speeds
2. Annamacharya kriti – 1
3. Veene Raja Rao kritis – 1
4. Madhyama kala kritis – 4, Vilamba kala kriti – 1
   Garudadhwani, Kalyana vasantha, Hemavathi, Mandari, Ananda Bhairavi
5. Thillana & DVG's Antahpura geete – 1 each

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THEORY

4th B.A. MUSIC - 11TH SEMESTER

Max. Marks – 50 marks (Theory - 35 + internal assessment – 15)
Number of students per batch – 4 candidates
Hours of work per week   -- 4 Hrs .Practicals + 2 Hrs. Theory.
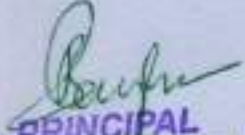
Sangeeta Shastra – 3

1. Group kritis of Sri.Thyagaraja with brief explanation
2. Biographies of the following mahila composers and their contributions to Karnataka Music – Helavana katte Giriyamma, Yadugiriyamma, Harapanahalli Bheemavva
3. Influence of Karnatak music on light music (Sugama sangeetha)
4. Mass media
5. Detailed study of Lakshanas of the following ragas with sancharas – Shuddha Dhanyasi, Hamsa nandi, Sama, Thodi, Gouda malhar

PRACTICALS

Max Marks 100 marks – (Practicals – 70 + internal assessment – 30)

1. Ata tala varna – Kambhoji in 2 speeds
2. Veene sheshanna kannada krithis & Dr.Muthaiah Bhagavathar's Chamundeshwari ashtottara shatha kritis – 1 each
3. Compositions of Mahila composers – 2
4. Rare krithis of different composers
5. Madhyama kala kritis – 4, Vilamba kala kriti – 1
   Shuddha Dhanyasi, Hamsanandi, Sama, Thodi, Goudamalhar

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THEORY

4th B.A. MUSIC - 12TH SEMESTER

Max. Marks – 50 marks (Theory - 35 + internal assessment – 15)
Number of students per batch – 4 candidates
Hours of work per week   -- 4 Hrs .Practicals + 2 Hrs. Theory.
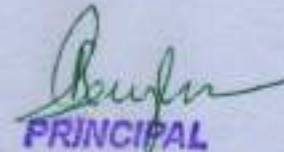
Sangeeta Shastra – 4

1. The technique adopted in rendering Tana
2. Exposition of pallavi
3. Brief study of the following lakshana granthas –Ragavibodha, swaramela kalanidhi , sangraha chudamani , sangeetha sampradaya pradarshini.
4. Katha kalakshepa
5. Group kritis of Muthuswamy Dikshithar with brief explanation

PRACTICALS

Max Marks 100 marks – (Practicals – 70 + internal assessment – 30)

1. Muthuswamy Dikshithar's Panchalinga krithi - 1
2. Rare krithis of different composers and Dr.Muthaiah Bhagavathar's Shivashthottara kritis – 1 each
3. Raga Tana Pallavi – 2 in two different talas
4. Sadashiva Brahmendra's krithi and Allama prabhu vachana – 1 each
5. Bhadrachala Ramadasa krithi and Ragamalika Devaranama – 1 each

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ಬೆಂಗಳೂರು ವಿಶ್ವವಿದ್ಯಾಲಯ
ಜ್ಞಾನಭಾರತಿ, ಬೆಂಗಳೂರು – 560056

ಕನ್ನಡ ಸ್ನಾತಕ ಪಠ್ಯ
2014-2017
(ಮೂರು ವರ್ಷಗಳ ಅವಧಿಗೆ)

ಕನ್ನಡ ಅಧ್ಯಯನ ಕೇಂದ್ರ
ಜ್ಞಾನಭಾರತಿ, ಬೆಂಗಳೂರು – 56

ಕನ್ನಡ ಸ್ನಾತಕ ಪಠ್ಯ
2014-2017
(ಮೂರು ವರ್ಷಗಳ ಅವಧಿಗೆ)

ಪಠ್ಯಪುಸ್ತಕ ನಿರ್ವಹಣೆ
ಡಾ. ಸಿ.ಬಿ. ಹೊನ್ನುಸಿದ್ದಾರ್ಥ
ನಿರ್ದೇಶಕರು

ಡಾ. ಬಿ. ಗಂಗಾಧರ
ಸಹ ಪ್ರಾಧ್ಯಾಪಕರು

ಪ್ರಸಾರಾಂಗ
ಬೆಂಗಳೂರು ವಿಶ್ವವಿದ್ಯಾಲಯ
ಜ್ಞಾನಭಾರತಿ, ಬೆಂಗಳೂರು 56

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ಪಠ್ಯ ಸಂಕ್ಷಿಪ್ತ ವಿವರ

ಕನ್ನಡ ಭಾಷಾಪಠ್ಯ
ಮೊದಲನೇ ಸೆಮಿಸ್ಟರ್ ಬಿ.ಎ. /ಬಿ.ಎಸ್.ಎಂ.

ಘಟಕ –1 ಹೊಸಗನ್ನಡ ಕಾವ್ಯ 4 ಕವಿತೆಗಳು – ನವ್ಯೋದಯ +ನವ್ಯ	20 ಅಂಕಗಳು
ಘಟಕ –2 ಕರುನಾಟಕ	20 ಅಂಕಗಳು
ಘಟಕ –3 ಕಥಾಸಾಹಿತ್ಯ ಎವಿಧ ಕಥೆಗಾರರ 3 ಕಥೆಗಳು	15 ಅಂಕಗಳು
ಘಟಕ –4 ಸಂಕೀರ್ಣ 3 ಲೇಖನಗಳು	15 ಅಂಕಗಳು

ಎರಡನೇ ಸೆಮಿಸ್ಟರ್ ಬಿ.ಎ/ಬಿ.ಎಸ್.ಎಂ.

ಘಟಕ –1 ಹೊಸಗನ್ನಡ ಕಾವ್ಯ 4 ಕವಿತೆಗಳು – ದಲಿತ ಬಂಡಾಯ, ಸ್ತ್ರೀವಾದ	20 ಅಂಕಗಳು
ಘಟಕ –2 ಕಾದಂಬರಿ ಭಾಗ–1 ಕಿರುಕೆದಂಬರಿ	20 ಅಂಕಗಳು
ಘಟಕ – 3 ಪ್ರಬಂಧಗಳು –3 ಲಲಿತ ಪ್ರಬಂಧಗಳು	15 ಅಂಕಗಳು
ಘಟಕ – 4 ಸಂಕೀರ್ಣ – 3 ಸಾಂಸ್ಕೃತಿಕ ಲೇಖನಗಳು	15 ಅಂಕಗಳು

ಮೊದಲನೇ ಸೆಮಿಸ್ಟರ್ ಬಿ.ಎಸ್ಸಿ.

ಘಟಕ–1 ಹೊಸಗನ್ನಡ ಕಾವ್ಯ 4 ಕವಿತೆಗಳು – ನವ್ಯೋದಯ + ನವ್ಯ	20 ಅಂಕಗಳು
ಘಟಕ –2 ಕಿರುಕಾದಂಬರಿ	20 ಅಂಕಗಳು
ಘಟಕ–3 ಪ್ರಬಂಧ / ವಿಜ್ಞಾನ ಕನ್ನಡ –3 ಲೇಖನಗಳು	15 ಅಂಕಗಳು
ಘಟಕ–4 ಸಂಕೀರ್ಣ –3 ಲೇಖನಗಳು	15 ಅಂಕಗಳು

ಎರಡನೇ ಸೆಮಿಸ್ಟರ್ ಬಿ.ಎಸ್ಸಿ.

ಘಟಕ –1 ಹೊಸಗನ್ನಡ ಕಾವ್ಯ 4 ಕವಿತೆಗಳು – ದಲಿತ ಬಂಡಾಯ, ಸ್ತ್ರೀವಾದ	20 ಅಂಕಗಳು
ಘಟಕ–2 (ಕಿರುನಾಟಕ)	20 ಅಂಕಗಳು

ಘಟಕ –3 ಕಥಾಸಾಹಿತ್ಯ–3 ಕಥೆಗಳು	15 ಅಂಕಗಳು
ಘಟಕ–4 ಸಂಕೀರ್ಣ – 3 ಲೇಖನಗಳು	15 ಅಂಕಗಳು

ಮೊದಲನೇ ಸೆಮಿಸ್ಟರ್ ಬಿ.ಸಿ.ಎ.

ಘಟಕ–1 ಹೊಸಗನ್ನಡಕಾವ್ಯ 4 ಕವಿತೆಗಳು – ನವ್ಯೋದಯ+ನವ್ಯ	20 ಅಂಕಗಳು
ಘಟಕ–2 4 ಕಥೆಗಳು	20 ಅಂಕಗಳು
ಘಟಕ–3 ಕಂಪ್ಯೂಟರ್ ಕನ್ನಡ 3 ಲೇಖನಗಳು	15 ಅಂಕಗಳು
ಘಟಕ–4 ಸಂಕೀರ್ಣ 3 ಲೇಖನಗಳು	15 ಅಂಕಗಳು

ಎರಡನೇ ಸೆಮಿಸ್ಟರ್ ಬಿ.ಸಿ.ಎ.

ಘಟಕ–1 ಹೊಸಗನ್ನಡಕಾವ್ಯ 4 ಕವಿತೆಗಳು – ದಲಿತ ಬಂಡಾಯ, ಸ್ತ್ರೀವಾದ	20 ಅಂಕಗಳು
ಘಟಕ–2 ಕಿರುನಾಟಕ	20 ಅಂಕಗಳು
ಘಟಕ–3 ಕಂಪ್ಯೂಟರ್ ಕನ್ನಡ 3 ಲೇಖನಗಳು	15 ಅಂಕಗಳು
ಘಟಕ–4 ಸಂಕೀರ್ಣ – 3 ಲೇಖನಗಳು	15 ಅಂಕಗಳು

ಕನ್ನಡ ಭಾಷಾ ಪಠ್ಯವಿವರ

ಮೊದಲನೇ ಸೆಮಿಸ್ಟರ್ ಬಿ.ಎ/ಬಿ.ಎಚ್.ಎಂ

1. ಹೊಸಗನ್ನಡ ಕಾವ್ಯ

1. ಒಲುಮೆ ಹೊನಲು ಕಡೆಗಳು   : ಪು.ತಿ.ನ
2. ತೆಂಗು   : ಜಿ.ಎಸ್.ಶಿವರುದ್ರಪ್ಪ
3. ಮಿಥಿಲೆ   : ಸು.ರಂ.ಎಕ್ಕುಂಡಿ
4. ಪ್ರೀತಿ ಮತ್ತು ಕರ್ತವ್ಯ   : ಯು.ಆರ್.ಅನಂತಮೂರ್ತಿ

2. ಕಿರು ನಾಟಕ

ಮಂಟೇಸ್ವಾಮಿ ಕಥಾಪ್ರಸಂಗ   : ಎಚ್.ಎಸ್.ಶಿವಪ್ರಕಾಶ

3. ಕಥಾ ಸಾಹಿತ್ಯ

1. ಸಹಪಾಠಿ   : ಪಿ.ಲಂಕೇಶ್
2. ಹಬ್ಬ ಮತ್ತು ಬಲಿ   : ಬಿ.ಟಿ.ಲಲಿತಾ ನಾಯಕ್
3. ಕಪ್ಪು ಮೋಡ ಬಿಳಿ ಅಂಚು   : ನೇಮಿಚಂದ್ರ

4. ಸಂದರ್ಶ ಲೇಖನಗಳು

1. ಅಭಿವೃದ್ಧಿಯ ಹೈವೇ ಮತ್ತು ಹಳ್ಳಿಯಾಚೆನ ಬೈಪಾಸ್
                        : ನಾಗೇಶಹೆಗಡೆ
2. ಸಿದ್ದಿಯ ಕಲ್ಲಿನ ಕೆಲವು ಸಾಂಸ್ಕೃತಿಕ ವೈಶಿಷ್ಟ್ಯಗಳು
                        : ರಾಘವೇಂದ್ರ ಎಸ್.
3. ಕೃಷಿ ಕಥನಗಳ ಬಾಗಿಲಲ್ಲಿ   : ಶ್ರೀಧರ ಬಳಗಾರ

ಎರಡನೇ ಸೆಮಿಸ್ಟರ್ ಬಿ.ಎ/ ಬಿ.ಎಚ್.ಎಂ

1. ಕವಿತೆಗಳು

1 ಮಾದಿಗರ ಹುಡುಗ   : ಬರಗೂರು ರಾಮಚಂದ್ರಪ್ಪ
2 ಬೀಸುವುದೆ ಇನ್ನೊಮ್ಮೆ ಆ ಚಂದಪವನ
                        : ಎಚ್.ಜೆ.ಸಣ್ಣಗುಡ್ಡಯ್ಯ
3 ಬರುವುದಾದರೆ ಮುಂಡಿಗೆಯ ಬಿಡಿಸು
                        : ಕುಮಾರ ಚಲ್ಯ
4 ಭಾಗೀರತಿ ಉಳಿಸಿದ ಪ್ರಶ್ನೆಗಳು: ನೂತನ ಎಂ.ದೋಶೆಟ್ಟಿ

2. ಕಿರು ಕಾದಂಬರಿ

ಚೋಮನದುಡಿ   : ಕೆ.ಶಿವರಾಮಕಾರಂತ

3. ಲಲಿತ ಪ್ರಬಂಧಗಳು

1. ನವನೀತ   : ಸಿ.ಪಿ.ಕೆ.
2. ಶ್ವಾನ ಪ್ರೇಮದ ಪರಿ   : ಈರಪ್ಪ ಎಂ.ಕಂಬಳಿ
3. ಬಿದ್ದಗೂಡಿನ ಹಕ್ಕಿ   : ವೈದೇಹಿ

4. ಸಂದರ್ಶ ಲೇಖನಗಳು

1. ಬರಿದಾಗುತ್ತಿರುವ ನನ್ನ ಪ್ರೀತಿಯ ಕಡಲು
                        : ಎಚ್.ನಾಗವೇಣಿ
2. ಚಾರ್ಲ್ಸ್ ಡಾರ್ವಿನ್ ಹಾಗೂ ವಿಕಾಸವಾದ
                        : ಎಸ್.ಎನ್.ಹೆಗಡೆ
3. ಜಾಗತೀಕರಣ ಮತ್ತು ಶಿಕ್ಷಣ – ಸಮಸ್ಯೆ, ಸವಾಲುಗಳು
                        : ಎನ್. ಜಗದೀಶ ಕೊಪ್ಪ

<table>
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ಮೊದಲನೇ ಸೆಮಿಸ್ಟರ್ ಬಿ.ಎಸ್ಸಿ

1 ಹೊಸಗನ್ನಡ ಕಾವ್ಯ

1. ಕೋಗಿಲ ಮಲೆಯ ಹಾಲುಂಡು – ಶಿಶುನಾಳ ಶರೀಫ
2. ದಾನಾಡಿ – ಬಿ.ಎಂ.ಶ್ರೀ.
3. ಬಿತ್ತನೆ – ಕೆ.ಎಸ್.ನಿಸಾರ್ ಅಹಮದ್
4. ನೋಡಬಾರದು ಜೀಲದೊಳಗನು – ವೈದೇಹಿ

2 ತಿರು ಕಾದಂಬರಿ

1. ಮುದುಕ ಮತ್ತು ಸಮುದ್ರ – ಮೂಲ : ಅರ್ನೆಸ್ಟ್ ಹೆಮಿಂಗ್ವೆ
ಅನು: ಕೆ.ಎಸ್.ಭಗವಾನ್

3 ವಿಜ್ಞಾನ ಕನ್ನಡ

1. ಪ್ರೆಸೋಟಿಗೆ ಸಜ್ಜಾಗುತ್ತಿರುವ ದೇಶ
    – ಎ.ಪಿ.ಜೆ. ಅಬ್ದುಲ್ ಕಲಾಂ
2. ವೈನಾಡಿನ ನರಭಕ್ಷಕ – ಪೂರ್ಣಚಂದ್ರ ತೇಜಸ್ವಿ
3. ಜ್ಯೋತಿಷ್ಯ – ಕೋವೂರ್

4. ಸಂಕೀರ್ಣ ಲೇಖನಗಳು

1. ಸಾಮಾಜಿಕ ಕ್ರಾಂತಿ ಮತ್ತು ಕನ್ನಡ ಸಾಹಿತ್ಯ
    – ಯು.ಆರ್.ಅನಂತಮೂರ್ತಿ
2. ಬಾಷೂ ಚಿಂತನೆ – ಬಿ.ಎ.ಶ್ರೀಧರ
3. ಮಹಾಡ್ ಕೆರೆಯ ಪ್ರಸಂಗ – ಬಿ.ಆರ್. ಅಂಬೇಡ್ಕರ್

</td><td>

ಎರಡನೇ ಸೆಮಿಸ್ಟರ್ ಬಿ.ಎಸ್ಸಿ

1. ಹೊಸಗನ್ನಡಕಾವ್ಯ

1. ಕತ್ತೆ ಮತ್ತು ಧರ್ಮ – ಸಿದ್ಧಲಿಂಗಯ್ಯ
2. ಪ್ರಶ್ನಿಸಲಿಲ್ಲವೇಕೆ? – ಕೆ.ಶರೀಫಾ
3. ಮನುಷ್ಯ : ಜ್ಞಾತದಿಂದ ಅಜ್ಞಾತದೆಡೆಗೆ – ಸರಜೂ ಕಾಟ್ಕರ್
4. ಕಪ್ಪು ಚಿರತೆಯ ಡಂಗುರ – ರಾಮದೇವ ರಾಕೆ

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3. ಕಥೆಗಳು

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2. ಮಾರಿಕೊಂಡವರು – ದೇವನೂರ ಮಹಾದೇವ
3. ದಗಡೂ ಪರಬನ ಅಶ್ವಮೇಧ – ಜಯಂತ ಕಾಯ್ಕಿಣಿ

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2. ಆರಿಯರೀ ಇರುವೆಯನು – ಎಸ್.ದಿವಾಕರ
3. ಕೆರೆಗಳು ಬತ್ತಿದಾಗ – ಅನಂತರಾಮು

</td></tr>
</table>

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3. ನೆಲ ಸಮಾಟಲ್ಲ	– ಗೋಪಾಲಕೃಷ್ಣ ಅಡಿಗ
4. ಸಂಬಳದ ಸಂಜೆ	– ಕೆ.ಎಸ್.ನರಸಿಂಹಸ್ವಾಮಿ

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2. ಕುಂಡಜ್ಜನ ಪ್ರಸಂಗ	– ಕೃಷ್ಣಮೂರ್ತಿ ಹನೂರು
3. ಮರದ ಬೊಂಬೆ	– ಕೊಡಗಿನ ಗೌರಮ್ಮ
4. ಕಲ್ಲಾಡಿಯ ಕೋಣ	– ಮಾಸ್ತಿವೆಂಕಟೇಶ ಅಯ್ಯಂಗಾರ್

3. ಸಂಕೀರ್ಣ ಲೇಖನಗಳು

1. ಬದುಕು ನನಗೇನು ಕಲಿಸಿದೆ	– ಎಚ್.ನರಸಿಂಹಯ್ಯ
2. ಹಿತ್ತಲ ಜಗತ್ತಿನ ಪಾಠಗಳು	– ರಹಮತ್ ತರೀಕೆರೆ
3. ರುಜ	– ಸುನಂದಾ ಬೆಳಗಾಂವ್ಕರ್

4. ಕಂಪ್ಯೂಟರ್ ಕನ್ನಡ

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2. ಕಂಪ್ಯೂಟರಿಗೆ ಕನ್ನಡ ಕಲಿಸಿದ ಕೆ.ಡಿ.ರಾವ್	– ಟಿ.ಜಿ.ಶ್ರೀನಿಧಿ
3. ಕನ್ನಡದಲ್ಲಿ ವಿಕಿಪೀಡಿಯಾ	– ಓಂಪ್ರಕಾಶ್

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2. ರೋಮನ್ ರಾಜ್ಯದ ಗುಲಾಮನೂ ಹಂಗರಹಳ್ಳಿಯ ಜೀತಗಾರನೂ	– ಮೂಡ್ನಾಕೂಡು ಚಿನ್ನಸ್ವಾಮಿ
3. ಆಕಾಶದ ಕೆಳಗೆ	– ಲಲಿತಾ ಸಿದ್ಧಬಸವಯ್ಯ
4. ಕದ್ದರೆಂದು	– ವಿಭಾ

2. ಕಿರು ನಾಟಕ

1. ಶ್ಮಶಾನ ಕುರುಕ್ಷೇತ್ರಂ	– ಕುವೆಂಪು

3. ಕಂಪ್ಯೂಟರ್ ಕನ್ನಡ ಲೇಖನಗಳು

1. ಪ್ರಭಾವೀ ದೃಶ್ಯಮಾಧ್ಯಮದೊಂದಿಗೆ ಯುವಜನ	– ವಿಶ್ವೇಶ್ವರ್ ಎಸ್.
2. ಶಕುಂತಲಾದೇವಿ : ಮರೆಯಾದ ಮಾನವ ಕಂಪ್ಯೂಟರ್	– ಕೆ. ಗೋಕುಲನಾಥ್
3. ಕಂಪ್ಯೂಟರ್ ಮಾಯಾಲೋಕ – ಕಣ್ಮುಚ್ಚಿರುವ ಕನ್ನಡದ ಲೇಖಕರು	– ಚ.ಹ.ರಘುನಾಥ

4. ಸಂಕೀರ್ಣ ಲೇಖನಗಳು

1. ಮಹಿಳೆ ಮತ್ತು ಜಾಹೀರಾತು	– ಸಾರಾ ಅಬೂಬಕ್ಕರ್
2. ಆಸ್ಪತ್ರೆ ಮತ್ತು ಸಮಾಜದ ಹೊಣೆಗಾರಿಕೆ	– ಸಿದ್ಧಲಿಂಗಯ್ಯ
3. ಗಾಡ್ಸೆ	– ಕೆ.ಪಿ.ಪೂರ್ಣಚಂದ್ರ ತೇಜಸ್ವಿ

ಕನ್ನಡ ಐಚ್ಛಿಕ ಪಠ್ಯವಿವರ

ಬಿ.ಎ. ಐಚ್ಛಿಕ ಕನ್ನಡ ಮೊದಲನೇ ಸೆಮಿಸ್ಟರ್

ಭಾಗ– 1 ಹೊಸಗನ್ನಡ ಕಾವ್ಯ   70ಅಂಕಗಳು

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2. ಕವಿ   : ಕುವೆಂಪು
3. ಶಿನಿಮಾವಾಲೀ   : ಜೆ.ಪಿ.ರಾಜರತ್ನಂ
4. ಅಸ್ತಮಾನ   : ಜಿ.ಎಸ್.ಶಿವರುದ್ರಪ್ಪ
5. ಕಪ್ಪು ಹುಡುಗ   : ಕೆ.ಎಸ್.ನರಸಿಂಹಸ್ವಾಮಿ

ನವ್ಯಕಾವ್ಯ

6. ಅಕ್ಕ – ತಮ್ಮ   : ಪಿ.ಲಂಕೇಶ್
7. ಸ್ವಾತಂತ್ರ್ಯದ ಹಣತೆ   : ಕೆ.ಎಸ್. ನಿಸಾರ್ ಅಹಮದ್
8. ಕಾಫಿ ಕುಡಿಯುತ್ತ ಪಾಪಪ್ರಜ್ಞೆ : ಎ.ಕೆ.ರಾಮಾನುಜನ್
9. ಗುಡಿಸಲ ಗೋರಿಯಿಂದ   : ಎಚ್.ಎಸ್.ವೆಂಕಟೇಶಮೂರ್ತಿ

ದಲಿತ–ಬಂಡಾಯ ಕಾವ್ಯ

10. ಬೇಂದ್ರೆ   : ಬರಗೂರು ರಾಮಚಂದ್ರಪ್ಪ
11. ಕೆಂಪಣ್ಣನ ವೈಮಿರಿ   : ದೊಡ್ಡರಂಗೇಗೌಡ
12. ಆವ್ವನ ನೆನಪು   : ಸಿದ್ದಲಿಂಗಯ್ಯ
13. ದಹನದ ಕಥೆ   : ಕೆ.ಬಿ.ಸಿದ್ದಯ್ಯ
14. ತಿಳಿದವರೇ ಹೇಳಿ   : ವೈದೇಹಿ
15. ದೆಹಲಿಗೆ ಎಷ್ಟೊಂದು ತೇಪೆಗಳು: ರಂಜಾನ್‍ದರ್ಗಾ
16. ಈ ನೆಲದ ಹಾಡು   : ಸ.ಉಷಾ
17. ನಾನು ರಾತ್ರಿಗಳನ್ನು ಮಾತ್ರ ಪ್ರೀತಿಸುತ್ತೇನೆ
                                        : ಶಶಿಕಲಾ ವೀರಯ್ಯಸ್ವಾಮಿ

18. ನಾನೊಂದು ಮರವಾಗಿದ್ದರೆ   : ಮೂಡ್ನಾಕೂಡು ಚಿನ್ನಸ್ವಾಮಿ
19. ಮಮ್ಮಾಜಳ ಮಹಲು   : ಕೆ.ಷರೀಫಾ
20. ಸರ್ಕಸ್ ಹುಡುಗಿ   : ಅಕ್ತಾ ಕೆ.

2. ಕನ್ನಡ ಸಾಹಿತ್ಯ ಚರಿತ್ರೆ –   30ಅಂಕಗಳು

1. ಕನ್ನಡ ಸಾಹಿತ್ಯ ಚರಿತ್ರೆಯ ಸ್ವರೂಪ, ಉದ್ದೇಶ
2. ಕವಿರಾಜಮಾರ್ಗ, ವಡ್ಡಾರಾಧನೆ
3. ಚಂಪೂ ಪರಿಚಯ – ಪಂಪ, ರನ್ನ, ದುರ್ಗಸಿಂಹ, ನಾಗಚಂದ್ರ
4. ದೇಶೀ ಕಾವ್ಯ : ಅಲ್ಲಮಪ್ರಭು, ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾದೇವಿ
5. ಹರಿಹರ, ರಾಘವಾಂಕ, ಜನ್ನ

ಬಿ.ಎ.ಐಚ್ಛಿಕ ಕನ್ನಡ ಎರಡನೇ ಸೆಮಿಸ್ಟರ್ ಪಠ್ಯ

1. ಹಳಗನ್ನಡ   ಅಂಕಗಳು :70

1. ಪಂಪನ ಆದಿಪುರಾಣ – ಸಹೋದರ ವಿಯೋಗೋದ್ವೇಗಮೆಗೆಯ್ಯದೊ
   (3ನೇ ಆಶ್ವಾಸದ ಆಯ್ದ ಭಾಗ) ಸಂ. ಎಲ್.ಬಸವರಾಜು
2. ರನ್ನನ ಗದಾಯುದ್ಧ – ಕರ್ಣಂಗದೇಂ ಕೂರ್ತೆನೋ –
   ತೀ.ನಂ.ಶ್ರೀಕಂಠಯ್ಯ
3. ನಾಗವರ್ಮನ ಕರ್ಣಾಟಕ ಕಾದಂಬರಿ : ವೈಶಂಪಾಯನ ಗಿಳಿ –
   ಆಯ್ದ ಭಾಗಟಿ.ಎಸ್.ವೆಂಕಣ್ಣಯ್ಯ

2. ಜನಪದ ಮಹಾಕಾವ್ಯ

1. ಮಂಟೇಸ್ವಾಮಿ – ರಾಜಪ್ಪಾಜಿ ಸಾಲು – ಸಂ. ಪಿ.ಜಿ.ದೊರಲಿಂಗಯ್ಯ
2. ಜುಂಜಪ್ಪ – ಬಡಮ್ಮೈಲನ ಸಂದು – ಸಂ. ಚಲುವರಾಜು
3. ಜನಪದ ಮಹಾಭಾರತ –ಹಸ್ತಿನಾವತಿಗೆ ಗಾರುಡಿ
   ಭೀಮಾರ್ಜುನರು ಮಾಯಾಜಾಲಕ್ಕೆ ಸಿಕ್ಕಿ
   ಪಿ.ಕೆ.ರಾಜಶೇಖರ

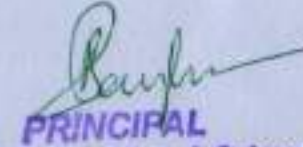3. ನಡುಗನ್ನಡ ಕವಿಗಳು : ಕುಮಾರವ್ಯಾಸ, ಚಾಮರಸ, ಲಕ್ಷ್ಮೀಶ, ಕೀರ್ತನ
   ಸಾಹಿತ್ಯ – ಕನಕದಾಸ, ರಕ್ಷಾಕರವರ್ಣಿ, ಸರ್ವಜ್ಞ, ಸಂಚಿಹೊನ್ನಮ್ಮ,
   ಶಿಶುನಾಳ ಷರೀಫ.

4. ಕನ್ನಡ ಸಾಹಿತ್ಯ ಚರಿತ್ರೆ   ಅಂಕಗಳು : 30

   * ಹೊಸಗನ್ನಡ ಸಾಹಿತ್ಯದ ಪ್ರಮುಖ ಘಟ್ಟಗಳು – ನವೋದಯ,
     ಪ್ರಗತಿಶೀಲ, ನವ್ಯ, ದಲಿತ–ಬಂಡಾಯ, ಮಹಿಳಾ ಸಾಹಿತ್ಯ (ಪ್ರಮುಖ
     ಸಾಹಿತಿಗಳ ಪರಿಚಯದೊಂದಿಗೆ)

   * ಆಧುನಿಕ ಸಾಹಿತ್ಯ ಪ್ರಕಾರಗಳು – ಪರಿಚಯ

BANGALORE UNIVERSITY

REGULATIONS, SCHEME AND SYLLABUS

For the course

I to VI Semesters

BACHELOR OF COMPUTER APPLICATIONS

(BCA)

(Choice Based Credit System (Semester Scheme) –Y2K14 Scheme)

Revised w.e.f.

Academic Year 2014-2015 and onwards
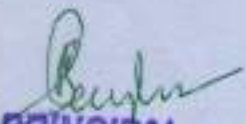
Regulations, Scheme of study and Examination for BCA Degree Course

Under Choice Based Credit System - Semester System (Y2K14 SCHEME)

(Revised w.e.f. 2014 -2015)

R 1.   a)   Title of the course: **Bachelor of Computer Applications**

   b)   Duration of the Course: Durations of the undergraduate programmes shall extend over FOUR semesters (TWO academic years) for the Associate Degree(Advance Diploma), SIX semesters (Three academic years) for the regular Bachelor Degree.

   c).   Scheme of study:

   i) There shall be five theory papers and two practical from first semester to fourth semester.

   ii) There will be five theory, two practical and one project in fifth semester. There will be four theory, one practical and one project in sixth semester.

   iii) The project work shall be carried out either independently or jointly (maximum of three students)

   iv) Medium of Instruction: The medium of instruction shall be English.

   d)   Scheme of Examination:

   At the end of each semester there be University Examination of three hours duration in each of the theory paper/practical.

R. 2.   Each semester shall be of 4 months duration

R. 3.   Attendance: As per Bangalore University regulations I n force for science degree courses.

R. 4.   A Candidate is allowed to carry over all the previous uncleared (failed) theory papers/Practical to subsequent semesters as per Bangalore University regulations in force for science degree courses.

R. 5.   The maximum period for completion of the course shall be six years form the date of admission.

R. 6.   Eligibility for admission:

   a) A candidate who has passed the two years Pre-University Examination conducted by the Pre-University Education Board in Karnataka

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APS College of Arts & Science
N.R. Colony, Bangalore-560 019.

b) A candidate who has passed JODC / Three years Diploma in Engineering of Government of Karnataka or any other examination considered as equivalent thereto shall be eligible for admission.

a) Any student who has passed PUC –II Science, Arts or Commerce securing a minimum of 35% OF MARKS

OR

b) Any student who has passed JODC or Diploma in Engg. (of three year duration of Govt. of Karnataka) with minimum of 35% of marks in aggregate in all the semester /years.

R. 7. Admission Procedure:

a) Through Counseling in respective colleges

b) 50% weight age for entrance test in respective colleges

c) 50% weight age for performance at qualifying examination.

d) Merit list shall be prepared based on item No, 7(b) and 7(c)

e) Reservation: As per the notification /Govt. orders form the University /Govt. from time to time.

f) Tuition and other fees: As fixed by the University from time to time

R8. The total number of students to be admitted to the course shall be decided by the University.

R9. Results: Results of candidate shall be declared and the classes awarded as per the procedure followed by the University for B.Sc. Courses.

R10. POWER TO REMOVE DIFFICULTIES

1) If may difficulty arises in giving effect to the provisions of these regulations, the Vice-Chancellor may be order make such provisions not inconsistent with the Act, Statutes, Ordinances or other Regulations, as appears to be necessary to expedient to remove the difficulty.

2) Every order made under this shall be subject to rectification by the appropriate University Authorities.

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N.R. Colony, Bangalore-560 019.

Title of Papers and Scheme of Study & Examination for BCA (Bachelor of Computer Applications) Under Choice Based Credit System - Semester System
(Revised w.e.f. 2014-2015)

Semester	Part	Paper Code	Title of the paper	Hours / Week	Marks			Credits	
					IA	Exam	Total	Subject	Semester
I	Part - 1	BCA101T	Indian Language	4	20	80	100	2	16
		BCA102T	English	4	20	80	100	2	
	Part – 2	BCA103T	Problem Solving Techniques using C	4	30	70	100	2	
		BCA104T	Digital Electronics	4	30	70	100	2	
		BCA105T	Discrete Mathematics	5	50	100	150	3	
		BCA103P	C Programming Lab	3	15	35	50	1	
		BCA104P	Digital Electronics Lab	3	15	35	50	1	
	Part – 3	-	Foundation Course	3	30	70	100	2	
		-	CC & EC		50		50	1	
II	Part – 1	BCA201T	Indian Language	4	20	80	100	2	16
		BCA202T	English	4	20	80	100	2	
	Part - 2	BCA203T	Data structures	4	30	70	100	2	
		BCA204T	Database Management System	4	30	70	100	2	
		BCA205T	Numerical and Statistical Methods	5	50	100	150	3	
		BCA203P	Data Structures Lab	3	15	35	50	1	
		BCA204T	DBMS Lab	3	15	35	50	1	
	Part - 3	-	Foundation Course	3	30	70	100	2	
		-	CC & EC	-	50	-	50	1	
III	Part - 1	BCA301T	Indian Language	4	20	80	100	2	16
		BCA302T	English	4	20	80	100	2	
	Part - 2	BCA303T	Object Oriented Programming using C++	4	30	70	100	2	
		BCA304T	Financial Accounting and Management	4	30	70	100	2	
		BCA305T	Operating System	5	50	100	150	3	
		BCA303P	C++ Lab	3	15	35	50	1	
		BCA304T	Accounting Package Lab	3	15	35	50	1	
	Part - 3	-	Foundation Course	3	30	70	100	2	
		-	CC & EC	-	50	-	50	1	
IV	Part - 1	BCA401T	Indian Language	4	20	80	100	2	16
		BCA402T	English	4	20	80	100	2	
	Part - 2	BCA403T	Visual Programing	4	30	70	100	2	
		BCA404T	Unix Shell programming	4	30	70	100	2	
		BCA405T	Operation Research	5	50	100	150	3	
		BCA403P	Visual Programming Lab	3	15	35	50	1	
		BCA404T	UNIX Lab	3	15	35	50	1	
	Part - 3	-	Skill Development Course	3	30	70	100	2	
			CC & EC	-	50	-	50	1	

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Semester	Part	Paper Code	Title of the paper	Hours / Week	Marks			Credits	
					IA	Exam	Total	Subject	Semester
V	Part - 2	BCA501T	Data Communication and Networks	4	50	100	150	3	20
		BCA502T	Software Engineering	4	50	100	150	3	
		BCA503T	Computer Architecture	4	50	100	150	3	
		BCA504T	Java Programming	4	30	70	100	2	
		BCA505T	Microprocessor and Assembly Language	4	30	70	100	2	
		BCA504P	Java Programming Lab	3	15	35	50	1	
		BCA505P	Assembly Language Programming Lab	3	15	35	50	1	
		BCA506P	Project	8	50	100	150	3	
	Part - 3	-	Skill Development Course	3	30	70	100	2	
VI	Part–2	BCA601T	Theory of Computation	4	50	100	150	3	20
		BCA602T	System Programming	4	50	100	150	3	
		BCA603T	Cryptography and Network Security	4	50	100	150	3	
		BCA604T	Web Programming	4	30	70	100	2	
		BCA604P	Web Programming Lab	3	15	35	50	1	
		BCA605P	Project Work	16	100	200	300	6	
	Part – 3	-	Skill Development Course	3	30	70	100	2	

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Annexure -II
Bangalore University
P.G. Department of Studies in Sanskrit
Titles & Abstracts of the papers (U.G. Syllabus) & Text-Books under CBCS Scheme
Language Sanskrit

Syllabus

I Semester : B.A/B.Sc/B.sc FAD/IBS
Language Sanskrit Paper-1- Poetry

1. Select portion of a Mahakavya / Khandakavya
2. Textual Grammar
3. Comprehension
4. Internal Assessment

II Semester B.A/B.Sc/B.sc FAD/IBS
Language Sanskrit Paper-2 - Prose

1. Select portion of a Gadyakavya / Popular Tales
2. Textual Grammar
3. Translation from Sanskrit to Kannada / English
4. Internal Assessment

III Semester B.A/B.Sc/B.sc FAD/IBS
Language Sanskrit Paper -3- Champu

1. Select portion of a Champu
2. Textual Grammar
3. Translation from Kannada / English to Sanskrit
4. Internal Assessment

IV Semester B.A/B.Sc/B.sc FAD/IBS
Language Sanskrit Paper -4 - Drama

1. Select portion of a drama or a short drama
2. History of classical Sanskrit Literature
3. Internal Assessment

BANGALORE UNVERSITY

DEPARTMENT OF BOTANY

SYLLABUS

B. Sc., BOTANY

I – VI SEMESTER

2014
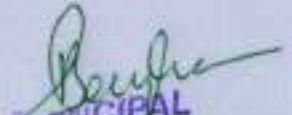
PROFORMA FOR THE SCHEME OF STUDY AND EXAMINATION OF CREIDIT BASED SEMESTER SCHEME, BACHELLOR'S DEGREE IN SCIENCE

Semester	Paper	Title of the Paper	Instruction hrs/week		Total No.Hrs		Duration of Exam (hrs)		Max. Marks for Examination							Credits		
									IA		Exam		Total		Grand			
			Theory	Practical	Theory	Practical	Theory	Practical	Theory	Practical	Theory	Practical	Theory	Practical	Total	Theory	Practical	Total
1	I	Diversity of Non- Vascular plants Part-1 Introduction to Microbiology, Viruses, Bacteria, Cyanobacteria and Phycology	4 hrs	3 hrs	52	52	3 hrs	3 hrs	30	15	70	35	100	50	150	02	01	03
2	II	Diversity of Non- Vascular plants Part-2 Mycology, Plant Pathology, Bryophytes and Plant Anatomy	4 hrs	3 hrs	52	52	3 hrs	3 hrs	30	15	70	35	100	50	150	02	01	03
3	III	Pteridophytes, Palaeobotany, Environmental Biology and Phytogeography	4 hrs	3 hrs	52	52	3 hrs	3 hrs	30	15	70	35	100	50	150	02	01	03
4	IV	Gymnosperms and Embryology of Angiosperms	4 hrs	3 hrs	52	52	3 hrs	3 hrs	30	15	70	35	100	50	150	02	01	03
5	V	Taxonomy and Economic Botany	3 hrs	3 hrs	39	39	3 hrs	3 hrs	30	15	70	35	100	50	150	02	01	03
	VI	Molecular Biology, Genetic Engineering, Biotechnology and Plant Physiology	3 hrs	3 hrs	39	39	3 hrs	3 hrs	30	15	70	35	100	50	150	02	01	03
6	VII	Cytology, Genetics, Evolution and Plant Breeding	3 hrs	3 hrs	39	39	3 hrs	3 hrs	30	15	70	35	100	50	150	02	01	03
	VIII	Plant Physiology	3 hrs	3 hrs	39	39	3 hrs	3 hrs	30	15	70	35	100	50	150	02	01	03

Chairperson

BANGALORE UNIVERSITY

Jnana Bharathi Campus, Bangalore-560056

DEPARTMENT OF ENGLISH
SYLLABUS
UG ENGLISH- I SEMESTER

(General and Additional English)

<u>**List of lessons for I Semester B.A. and other courses coming under the Faculty of Arts.**</u>

POETRY

1	Don't look into the Vanity Bag	Vaidehi
2	A Few words on the Soul	Wislava Szymborska

PROSE

1.	The Axe	R.K.Narayan
2.	Our Teacher	Masti Venkatesha Iyengar
3.	After Twenty Years	O'Henry
4.	The Day My World Changed	Malala Yusuf
5.	Three Great Hearts Resolve a Problem	Abdul Kalam
6.	A Letter From Her Father	Prakash Padukone

Grammar and Composition.

1. Vocabulary Building: Diminutives OR One-word substitutes, Rearrangement of the Words in a Sentence, Synonyms and Antonyms.

2. Basic Language Skills: Correction of Errors in the Sentences *(errors may be pertaining to the use of articles, prepositions, tense of the verb)*, Question forms: Confirmative questions, Informative questions and Questions Tags, Punctuations.

3. Reading Skills: Reading Comprehension using Unseen Passage.

4. Writing Skills: Describe the Given Picture, Paraphrase a short poem, Translation from English to Kannada and vice versa (as part of suggested activity meant for teaching exercises only, not to be tested in examination. This to encourage students to prepare themselves for competitive examinations which are making space for testing of skills in translation)
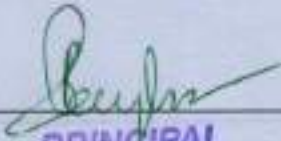
<u>**List of lessons for I Semester B.Sc/BCA and other courses coming under the Faculty of Science**</u>

POETRY

1. I shall go back in the New Year - Nilim Kumar

2. Sonnet--- Yehuda Amichai

PROSE

1. The Wolf –Farooq Sarwar

2. Leaving – M.G. Vassanji

3. Real Food—Chimamanda Ngozi Adichie

4. Wings of Fire—Abdul Kalam

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5. Relations between men and women – Raja Ram Mohan Roy

6. Stay Hungry, Stay Foolish- Steve Jobs

Suggested Reading: Literature and Science —Essay

Grammar and Composition.

Listening Skills   a. Looking for Specific Information-

a. Listening to Specific Instructions
b. Listening to Different TextTypes- Speeches

Speaking Skills:

a. Introducing Oneself
b. Giving Instructions
c. Describing People, Places,Things,
Process Etc
d. Narrating An Event, OccurrenceEtc

Reading Skills: (to be integrated withinthe literary texts in every unit)

Grammar Usage: Phrase, Clause,
Sentence

a.   Phrases- noun, adjective,adverb,   verb,preposition- articles
b.   Clauses—coordinate,subordinate

c.   Sentence- making sentences (simple, compound, complex),
subject- verb agreement
    b.   Looking for TheGist-Skimming

C. Reading for ComprehensionAt Different Levels- Factual,
Interpretative, Inferential, Evaluative

Writing Skills:

a. Paragraph Writing
b. Letter Writing- Leave Letters,Letters of Complaint
Scanning

CONFLATIONS-IV

General English Course Book & Comprehension

IV Semester B.Sc.,/BCA

(Other Courses under the Faculty of Science)

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BANGALORE UNIVERSITY

Jnanabharathi, Bengaluru – 560 056

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CONTENTS

JOB SKILLS

ILLUMINATIONS - IV

Fourth Semester

B.A. / B.S.W. /B. Music/B.F.A. /B.V.A.
Courses coming under the Faculty of Arts

Prasaranga
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Jnanabharathi, Bengaluru – 560 056

Contents

LANGUAGE AND COMPOSITION

ContentsLITERARY

COMPONENTS
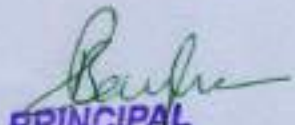
BANGALORE UNIVERSITY

B. Sc., Chemistry Syllabus

I to VI Semesters
(w. e. f. 2014)

Department of Chemistry
Central College Campus
Bangalore - 560 001

SCHEME OF EXAMINATION

Title of the paper	Contact hours/Week	Exam. hours	IA	Marks	Total Marks	Credits
First Semester						
Chemistry-I	4	3	30	70	100	2
Chemistry Practical-I	3	3	15	35	50	1
Second Semester						
Chemistry-II	4	3	30	70	100	2
Chemistry Practical-II	3	3	15	35	50	1
Third Semester						
Chemistry-III	4	3	30	70	100	2
Chemistry Practical-III	3	3	15	35	50	1
Fourth Semester						
Chemistry-IV	4	3	30	70	100	2
Chemistry Practical-IV	3	3	15	35	50	1
Fifth Semester						
Chemistry-V	3	3	30	70	100	2
Chemistry- VI	3	3	30	70	100	2
Chemistry Practical-V	3	3	15	35	50	1
Chemistry Practical-VI	3	3	15	35	50	1
Sixth Semester						
Chemistry-VII	3	3	30	70	100	2
Chemistry VIII	3	3	30	70	100	2
Chemistry Practical-VII	3	3	15	35	50	1
Chemistry Practical-VIII	3	3	15	35	50	1

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UNIT-I

Mathematical Concepts for Chemistry
<div align="right">4 hours</div>

Logarithmic relations: Definition, some important relations like $\log(m+n)$, $\log\left(\frac{m}{n}\right)$, $\log m^n$, change of base ($\log_e 2 \to \log_e x$). Application in the calculation of pH.

Curve sketching: How a cure is sketched with a set of points: linear and non-linear (asymptotic) with a set of points, sketching both linear and non-linear curves. Calculation of slope in the case of linear curve.Extrapolation of linear curve and arriving at a limiting value.

Parabolic curve- maximum and minimum. *Differentiation*: Meaning and derivative of functions like e^x, $\log x$, $\sin x$, $\cos x$, $\frac{1}{x} \cdot x^2$, x and $\sqrt{n}$, $\frac{dy}{dx} = 0$ at maximum and minimum.

2nd *order differentiation*: for maximum and minimum (derivation from first principles not required). Rules of differentiation for $y = u + v$, $y = uv$, $y = \frac{u}{v}$ and $y = ku$, where k is constant.

Partial differentiation: Explanation, applications using the equation, $H = U + PV$ and $G = H - TS$.

Integration: Meaning and integrals of functions like, x, dx, x^2, $\frac{1}{x} \cdot \frac{1}{x^2} \cdot \frac{1}{x^3} \cdot x^n$, e^x, $\sin x$ and $\cos x$. simple problems from I and II order kinetics.

Exact and inexact differentials: Examples from internal energy and enthalpy. *Definite integrals*. *Probability*: some definitions, examples from atomic orbitals, wave functions and entropy.

Gaseous state
<div align="right">9 hours</div>

Introduction: Need for Maxwell-Boltzmann distribution law, mathematical expression for both mole and molecule-explanation of the terms only. Explanation of velocity distribution curves based on this law (no derivation). Mean free path, collision frequency and collision number. Definition and expressions using SI units (no derivations). Derivation of expression for most probable speed from Maxwell-Boltzmann equation Definitions and expressions for rms velocity and average velocity, relationships between them. Problems.

Andrew's isotherm on carbon dioxide and explanation of the curves (no experimental details). Derivation of critical constants T_c, P_c and V_c from van der Waal's equation and their experimental determination by Cagniard de La Tour method for T_c and P_c. Amagat's mean density method for V_c. Problems on the calculation of T_c, P_c and V_c, a and b.

Law of corresponding states-statements, reduced equation of state and explanation. Joule-Thomson effect-explanation. Joule-Thomson co-efficient, inversion temperature-definition (no derivation).The application of Joule-Thomson effect to the liquefaction of air and hydrogen by Linde's process.

UNIT-II

Photochemistry
<div align="right">4 hours</div>

Laws of photochemistry. Grotthus-Draper law, Stark-Einstein law, differences between photophysical and photochemical processes with examples. Comparison of photochemical and thermal reactions. Quantum yield of photochemical combination of (i) H_2 and Cl_2 (ii) H_2 and Br_2 (iii) dissociation of HI (iv) dimerisation of anthracene. Photosensitization, photostationary

equilibrium. Singlet and triplet states. Fluorescence, phosphorescence, luminescence, bioluminescence and chemical sensors.

Beer-Lambert's law and its applications. Numerical problems on absorption coefficient and molar extinction coefficient.

Liquids and Solutions 9 hours

Properties of liquids-Viscosity, Surface tension and Parachor-Definition, mathematical expression, numerical problems and factors affecting them.

Viscosity- Definition, mathematical expression, Coefficient of viscosity, effect of temperature, size, weight, shape of molecules and intermolecular forces on it.

Surface Tension-Definition, mathematical expression, effect of temperature and solute on it

Parachor-Definition, Sugen equation, calculation and applications. Numerical problems.

Liquid Mixture: Review of Raoult's law, ideal and non-ideal solutions.

Completely miscible liquids-Fractional distillation Tc curves for all the three types, azeotropic mixtures -examples.

Completely miscible liquids-Critical solution temperature (Three types), examples. Effect of addition of salt on CST of phenol-water system.

Immiscible liquids-Steam distillation and its applications.

Distribution law-Statement, partition coefficient and condition for validity of distribution of distribution law. Application-solvent extraction

Dilute solutions- Review of colligative properties and concentration terms

Determination of molecular mass of a solute by: (i) Berkeley-Hartley's method (π); (ii) Beckmann's method (ΔT_f) and (iii) Landsberger's method. Numerical problems.

UNIT-III

Periodic Table and Periodic properties 9 hours

Review of the modern periodic table (with respect to classification of elements based on outer electronic configuration)

Periodic properties: Atomic and ionic radii, ionisation energy, electron affinity and electronegativity. Trends in the periodic properties. Applications in predicting and explaining chemical behaviour. Factors affecting the values of ionisation energy. Determination of electronegativity by Pauling's method. Diagonal relationship between beryllium and aluminium. Comparitive study of elements of alkali and alkalline earth metals, chalcogens and halogens with respect to electronic configuration, atomic and ionic radii, ionisation energy, and elecronegativity. Halides, oxides and carbonates of alkali and alkalline earth metals. Hydrides of chalcogens and halogens.

Analytical Chemistry 4 hours

Errors: Classification, minimization of determinate errors, accuracy and precision. Significant figures and their computations.

Equivalent weights of acids, bases, salts, oxidising and reducing agents. Methods of expressing concentration of solutions in terms of Normality and Molarity. Numerical problems.

B. Sc., – II Semester
Paper- II

UNIT-I

Quantum Mechanics and Atomic Structure 13 hours
Review of Bohr's atomic model:
Derivation of expressions of for radius, energy and ionisation energies of hydrogen like atoms.
Numerical Problems.
Limitations of classical mechanics. Wave particle duality, Uncertainty principle.
New quantum mechanics-Sinusoidal wave (Explain sinusoidal wave.) equation (classical wave mechanics); Schrodinger wave equation- derivation. Postulates of quantum mechanics.
Significance of terms- (i) Hamiltonian operator; (ii) eigen function Ψ (significance of ψ and ψ^2); (iii) eigen values.
Application of Schrodinger equation: (i) to particle in one dimensional box (derivation required); (ii) to the hydrogen atom (detailed solution not required)
Expressing the solution as a product of $\psi_{n, l, m}(r, \theta, \phi) = \psi_{n, l\,(r)}\Psi_{l, m(\theta, \phi)}$
Explanation of quantum numbers (only qualitative). Radial probability distribution and angular probability distribution. Orbitals

UNIT-II

Chemical bonding 13hours
Ionic bond: Lattice energy, Born-Haber cycle, Born-Lande equation (derivation not required, problems on Born-Lande expression to be worked out). Calculation of lattice energies of NaCl and MgO, effect of lattice energy on solubility of ionic compounds.
Covalent bond: Valence bond approach: hybridization and directional characteristics of sp, sp^2, sp^3, sp^2d, sp^3d^2. Shapes of $BeCl_2$, BF_3, $SiCl_4$, PCl_5, SF_6. VSEPR theory: shapes of CH_4, NH_3, NH_4^+, H_2O, BrF_3, ICl_2^-. Molecular orbital theory: H_2, He^{2+}, Be_2, N_2, O_2, O^{2-}, O_2^{2-}, O^{2+} and CO (bond order, stability and magnetic properties to be discussed). Polarization concept, Fazan's rule, bond length, bond angle and bond energy, polar and non-polar molecules, dipole moment.
Weak interactions: i). Hydrogen bond: Intra molecular and Intermolecular types, anomalous properties of HF, H_2O, NH_3, alcohols, carboxylic acids, nitro phenols and bio molecules.
ii) van der Waal's forces: Noble gases and molecular crystals (dry ice, Iodine and solid SO_2)
Metallic bond: Band theory, electrical properties of metals, semiconductors and insulators.

UNIT-III

Silicates 2hours
Structure of SiO_4^{4-}, Classification of silicates based on the structure. Zeolites: their structure and applications.
Noble gases 3hours
Introduction, isolation of Helium from Natural gas, applications of Noble gases. Preparation properties and structures of fluorides and oxides of Xenon (XeF_2, XeF_4, XeF_6, XeO_3, XeO_4).
General study of d and f block elements. 8hours
Transition elements: electronic configuration, atomic and ionic radii, ionisation energy, oxidation states, redox potentials, spectral and magnetic properties, catalytic activity, interstitial compound formation.

UNIT-IV

Basic concepts in organic chemistry   **4 hours**

Bond cleavage – homolytic and heterolytic. Types of reagents – electrophilic and nucleophilic reagents. Reactive intermediates - generation and relative stabilities of carbocation, carbanion, carbon free radicals and carbenes – explanation for stability and reactivity based on inductive, resonance and hyperconjugation effects.

Types of reactions - addition, substitution and elimination. Concept of isomerism - structural isomerism, stereo isomerism - geometrical and optical isomerism, chiral center – definition and examples. Tautomerism (keto – enol).

Aliphatic Hydrocarbons   **9 hours**

Alkanes: Sources, Nomenclature of branched chain alkanes, preparation of symmetrical and unsymmetrical alkanes- Corey- House reaction and Wurtz reaction - their merits and demerits. Conformational analysis of n-butane - Sawhorse and Newman projection formulae to be used - Energy profile diagram.

Cycloalkanes: Nomenclature. Method of formation. Explanation for stability based on heat of hydrogenation data, Baeyer's strain theory and its limitation, Sachse - Mohr theory of strain-less rings; cyclopropane ring - banana bonds.

Alkenes: Preparation of alkenes by Wittig reaction-stereoselectivity. Addition of HX to unsymmetrical alkene - Markownikov's rule and Antimarkownikov's rule with mechanism. Reactions: Hydroboration- oxidation, reduction, oxymercuration - demercuration, epoxidation. Mechanism of oxidation with $KMnO_4$ and OsO_4.Ozonolysis- mechanism and importance.

Dienes: Classification- isolated, conjugated, cumulated. Structure of allene and butadiene.1,2 addition and 1,4 addition reactions. Diels Alder reaction-1,3-butadiene with maleic anhydride.

Alkynes: Methods of preparation - Dehydrohalogenation of vicinal and geminal dihalides; and higher alkynes from terminal alkynes. Reactions - metal ammonia reduction – significance. Oxidation with $KMnO_4$, acidic nature of terminal alkynes.

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B. Sc., –III Semester
Paper III

UNIT-I

Chemical Kinetics   **7 hours**

Review of terms –Rate, Order and Molecularity.

Derivation of expression for the rate constant of a second order reaction with $a = b$ and $a \neq b$. Expression for half-life of a second order reaction. Mean life for first order reaction to be mentioned. Problems on rate constant, half-life period, mean life period and order of reaction.

Determination of order of reaction: differential method, method of integration, method of half-life period and isolation method.

Theories of reaction rates: Effect of temperature on rate of reaction, Arrhenius equation, concept of activation energy. Problems.

Simple collisions theory based on hard sphere model, transition state theory (equilibrium hypothesis). Expression for the rate constant based on equilibrium constant and thermodynamic aspects. Steady state approximation and Lindemann's hypothesis.

Experimental determination of kinetics of: (i) inversion of cane sugar by polarimetric method, (ii) spectrophotometric method for the reaction between potassium persulphate and potassium iodide.

Thermodynamics I   **6 hours**

Exact and inexact differentials. Review of terms, I law of Thermodynamics.

Work done (derivation with problems) in isothermal and adiabatic expansion and compression of an ideal gas (IUPAC sign conventions to be used).

Heat capacity of a gas at constant pressure and constant volume: relation between P, V and T in an adiabatic process to be derived. Derivation of Kirchoff's equation. Numerical problems. Spontaneous and non-spontaneous processes.

Second law of thermodynamics: Limitations of I law of thermodynamics with illustrations. Need for II law of thermodynamics, different ways of stating II law with respect to heat and spontaneity. Other forms of II law of thermodynamics. Concept of entropy and its physical significance-illustrations with order, disorder, physical and chemical processes and probability.

Heat engine-Carnot's cycle and derivation of the expression for its efficiency. Problems based on efficiency equation. II law in terms of efficiency (η). Change in entropy in reversible and irreversible processes (derivations required) . Calculation of entropy changes in reversible isothermal and reversible adiabatic processes. Phase transitions in terms of Entropy (Fusion, vaporization, sublimation and polymorphic changes) in terms of entropy. Limitations of the entropy concept of spontaneity. Problem on Phase transitions

UNIT-II

Thermodynamics II   **4 hours**

Gibb's free energy: Work function, chemical potential. Definition and relationship between free energy and work function. Criteria for equilibrium and spontaneous processes. Gibb's-Helmholtz equation-Derivation. Change of free energy with respect to temperature and pressure. Mention of temperature coefficient, van't Hoff isotherm (derivations included), $\Delta G^\circ = -RT \, ln K_p$. Problems.

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Lanthanides and Actinides: Electronic configuration, atomic and ionic sizes, lanthanide contraction and its consequences. Oxidation states, spectral and magnetic properties, comparison of oxidation states, complex formation and magnetic properties of d and f block elements. Ion exchange method for separation of Lanthanides.

UNIT-IV

Aromatic hydrocarbons   **9 hours**

Nomenclature. Structure of benzene - using molecular orbital theory. Criteria for aromaticity-Huckel's rule (Examples: cyclopentadienyl anion, cycloheptatrieneylcation, benzene, naphthalene, anthracene and phenanthrene). Antiaromaticity.

General mechanism of aromatic electrophilic substitution. Mechanism of nitration of benzene including evidence for the formation of nitronium ion, energy profile diagram and isotopic effect. Orienting influence of substituents in toluene, chlorobenzene, nitrobenzene and phenol.

Aromatic nucleophilic substitution *via* benzyne intermediate, mechanism with evidences for the formation of benzyne by trapping with anthracene, Birch reduction.Side chain oxidation of toluene to benzaldehyde and benzoic acid. Oxidation of naphthalene, anthracene and phenanthrene. Diels-Alder reaction of anthracene with 1,2-dichloroethene.

Alkenyl benzenes: Styrene, *cis*- and *trans*-stilbenes and their preparations.
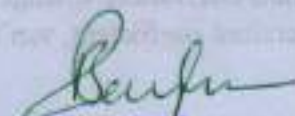Biphenyl: Preparation-Ullmann reaction.

Organic halogen compounds   **4 hours**

Alkyl halides: Nomenclature. Nucleophilic substitution reactions - S_N1 andS_N2 mechanisms with energy profile diagrams. Effect of (i) nature of alkyl groups,(ii) nature of leaving groups, (iii) nucleophiles and (iv) solvents on S_N1 and S_N2 mechanisms. Elimination reactions - E1 and E2 mechanisms; Hofmann and Saytzeff eliminations with mechanism.

Aryl halides: Preparation by halogenation. Relative reactivity of alkyl, allyl, vinyl, aryl and aralkyl halides towards nucleophilic substitution.

Derivation of van't Hoff reaction isochore and Clausius-Clapeyron equation. Its applications to ΔT_b and ΔT_f determination (thermodynamic derivation not required).

Qualitative treatment of Nernst heat theorem and III law of thermodynamics-statement only. Elementary concept of residual entropy.

Surface chemistry   4hours
Review of surface phenomena.

Theories of adsorption . Adsorption isotherms and BET equation (derivation included), Adsorption indicators. Surface film on liquids.

Catalysis —Types and theories ((intermediate compound theory and adsorption theory).

Heterogeneous catalysis: surface reactions, unimolecular, bi-molecular surface reactions. pH dependence of rate constant of catalysed reactions. Autocatalysis.

Organic and Inorganic Polymers   3hours
Differences between inorganic and organic polymers.

Polymerisation: types: addition and condensation polymerisation

Molecular weight of Polymers: Expression for Weight average and Number average (experimental determination is not required)

Preparation and applications of the following types of polymers
1. Plastics: i)thermosetting plastics(Phenol-formaldehyde)
   ii) thermo softening plastics(PVC)
2. Fibers: Acrylic, polyamide, polyester types: one example for each
3. Rubber: Neoprene,
4. Fluoro Carbons: Teflon
5. Silicones.

Compounds of some Nonmetals.   2hours
i) Boron and its compounds: Synthesis, structure and applications of Diborane, Borazole and Boron trifluride.

ii) Halogens and its Compounds: Bleaching powder: manufacture and its applications.

UNIT-III

Metallurgy   5 hours
Ellingham's diagrams: Salient features. Selection of reducing agents using Ellingham's diagrams.Extraction of the following metals.
i) Nickel from sulphide ore
ii) Thorium from Monazite sand
iii) Uranium from Pitch blende
iv) Plutonium from Nuclear waste.

Alcohols and Thiols   8 hours

Alcohols: Introduction and classification. Methods of preparation - (i) From carbonyl compounds - reduction of aldehydes and ketones (by Meerwein-Pondorff-Verley reaction); (ii) from acids and esters (by reduction with $LiAlH_4$); (iii) From alkenes (by hydroboration-oxidation with alkaline peroxide); (iv) hydration of alkenes. Reactions of alcohols: Acidic nature, esterification, oxidation of alcohols with $KMnO_4$. Comparison of the reactivity of 1°, 2° and 3° alcohols- Lucas test, oxidation with $K_2Cr_2O_7$

Glycols: Preparation from alkenes using OsO_4, $KMnO_4$ and from epoxides. Oxidation of glycols by periodic acid and lead tetraacetate with mechanisms. Pinacol-pinacolone rearrangement.

Glycerol: Preparation from propene and from oils/fats. Uses. Reactions of glycerol: (i) nitration, (ii) action of concentrated H_2SO_4 and (iii) oxidation by periodic acid.

Thiols: Nomenclature. Methods of formation and chemical reactions (with sodium, NaOH, metal oxides, formation of thioesters and oxidation with mild and strong oxidizing agents). Uses of dithianes. Introduction of umpolung character (reversal of polarity) in carbonyl compounds.

UNIT-IV

Phenols
3 hours

Classification. Acidic nature - Comparison of acidic strength of phenol with alcohols and monocarboxylic acids. Effect of electron withdrawing $-NO_2$ group and electron donating $-CH_3$ group on acidity of phenols at o-,m-,p- positions. Pechmann reaction, Mechanisms of Reimer-Tiemann and Kolbe-Schmidt reactions.
Industrial applications of phenols: Conversion of phenol to (i) aspirin, (ii) methyl salicylate, (iii) salol, (iv) salicyl salicylic acid.

Ethers and Epoxides
4 hours

Ethers: Methods of preparation – (i) dehydration of alcohols, (ii) Williamson's ether synthesis. Reactions – Ethers as Lewis bases (complexation with metal ions), cleavage and auto-oxidation. Ziesel's method.

Epoxides: Preparation using per acids, Darzen's reaction. Reactions of mono and 1,2-disubstituted epoxides with (i) carbon nucleophiles, (ii) nitrogen nucleophiles, (iii) reduction with $LiAlH_4$.

Fertilizers
4 hours

Introduction(need of fertilizers), functions of essential plant nutrients(N,P,K).
Classification of fertilizers with examples. Nitrogeneous, Phosphatic and mixed fertilizers with suitable examples. Manufacture of urea and Super phosphate of lime, and their uses.
Fertilizer industries in India.

Organometallic compounds
2 hours

Preparation and synthetic applications of Grignard reagents, Organolithium compounds and lithium dialkylcuprates.

<div align="center">

B.Sc., IV -Semester
Paper –IV

UNIT-I

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Phase Equilibria   7 hours

Statement and explanation of the terms with examples for phase (P), component (C) and degree of freedom (F), Definition and significance of phase rule. Derivation of phase rule. Application of phase rule to one component systems-water and sulphur, -modified form of phase rule to two component systems. Water–potassium iodide and lead-silver systems. Eutectic mixtures and their applications (examples: freezing mixtures, desilverisation of lead by Patterson's method).

Solid state   6 hours

Crystalline state, Laws of crystallography. Symmetry elements in crystals, crystal systems.Weiss and Miller indices. X-ray diffraction of crystals-derivation of Bragg's equation, . Problems
Liquid crycstals-Types with examples. Applications
Superconducting solids-High temperature superconductors. Applications.

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UNIT-II

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Water Technology   3hours

Types of impurities present in water. Causes for the hardness of water. Permissible levels of ions present in water. Treatment of water for domestic and Industrial purposes by the following methods.
i) Demineralisation of water by Ion exchange method.
ii) by reverse Osmosis method.

Nuclear and Radiochemistry.   8hours

Nucleus: Structure and stability, binding energy calculations. Instability of the nuclei, radioactive decay law, half life: numerical problems. Radioactive equilibrium, radioactive series. Artificial radioactivity: Nuclear reactions induced by γ-radiation,α,n,p,and d particles. Nuclear fission and fusion. Nuclear reactors, Breeder reactors, atomic energy programme in India. Isotopes- use of radio isotopes in tracer technique, agriculture, medicine, food preservation and Carbon dating-Numerical problems.

Powder metallurgy   2hours

Advantages of powder metallurgy and its applications. Methods of production of metal powders. production of Tungsten powder from Wulframite.

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UNIT-III

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Steel   5hours

Iron-Carbon Phase diagram, Austenite, Ferrite, Cementite and Pearlite phases.
Alloy steels: Influence of Si, Mn, Cr, Ni, Ti and W on the properties of Steel.
Ferro alloys: Production of ferro chrome, ferro manganese, and ferro silicon and their applications.
Carbon steel: classification. Heat treatment: hardening, case hardening, carbiding, nitriding, tempering and annealing.

Aldehydes and Ketones   8hours

Nomenclature. Preparation of aldehydes: from acid chlorides (Rosenmund reaction), Gattermann-Koch aldehyde synthesis. Preparation of Ketones: From nitriles, from carboxylic acids with alkyl lithium, from acid chlorides with metal alkyls.
Mechanisms of: Aldol condensation, Perkin condensation, Knoevenagel condensation, Benzoin condensation and Acetal formation. General mechanism of condensation with ammonia and its derivatives (NH_2–R; R = –NH_2, –OH, –NH–CO–NH_2).
Reduction: Reduction by $LiAlH_4$ and $NaBH_4$. Mannich reaction. Mechanisms of Clemmensen and Wolff-Kishner reductions.

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UNIT-IV

Carboxylic acids and their derivatives.   5 hours

Nomenclature. Preparation: Acid hydrolysis of nitriles with mechanism.

Acidic strength (pK$_a$ values) - Effect of substituents on the strength of aliphatic and aromatic carboxylic acids. (comparison of acidic strength of formic and acetic acids; acetic acid and monochloro, dichloro, trichloro acetic acids ; benzoic and p-nitrobenzoic acid; benzoic acid and p-aminobenzoic acid)

Reactions: Formation of esters, acid chlorides, amides and anhydrides. Hell-Vollhardt-Zelinski reaction, Decarboxylation and reduction (using LiAlH$_4$). (already included under preparation of alcohols from acid)

Di and tri carboxylic acids: Action of heat on dicarboxylic acids (Oxalic to Adipic acids)

Reactions of tartaric acid and citric acid. (action of heat, reduction with HI).

Reactions of acid chlorides (hydrolysis, reaction with alcohol, ammonia and lithium dialkylcuprates) .Acid anhydrides (hydrolysis, reaction with alcohol, ammonia).Esters (alkaline hydrolysis, ammonolysis and alcoholysis).Amides (hydrolysis, reduction, Hoffmann rearrangement). Mechanism of ester hydrolysis - acid and base catalysed (acyl O-cleavage: B$_{AC}$2, A$_{AC}$2; alkyl O-cleavage: A$_{AL}$1 mechanisms).

Tautomerism and Enolates   4 hours

Tautomerism in carbonyl compounds – Keto-Enol tautomerism. Acidity of α-hydrogen atoms in aldehydes, ketones and active methylene compounds (example diethyl malonate, ethyl acetoacetate and acetyl acetone). Preparation of (from acetic acid) and synthetic applications of diethyl malonate (preparation of monocarboxylic acids - butanoic acid, dicarboxylic acid - Adipic acid, unsaturated acids - cinnamic acid, ketones - butanone, cyclic compounds - barbituric acid)

Preparation of ethyl acetoacetate (from ethyl acetate). Synthetic applications of ethyl acetoacetate (preparation of monocarboxylic acids - butanoic acid, dicarboxylic acid –succinic acid, unsaturated acids - crotonic acid, ketones - butanone).

Environmental Chemistry   4hours

Depletion of ozone in the stratosphere. causes and remedial measures. The green-house effect and its consequences. Acid rain, photochemical smog. Treatment of sewage and industrial effluents. Disposal of radioactive wastes.

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B.Sc., - V Semester
Paper V

UNIT-I

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Stereochemistry   8hours

Elements of symmetry in chiral and achiral molecules, chirality, stereogenic centre. Fischer projection formulae.

Enantiomers: Optical activity; use of +/–, *d/l* and D/L notations. Properties of enantiomers, chiral and achiral molecules with two stereogenic centers. Meso compounds. Cahn-Ingold-Prelog sequence rules: R, S system of nomenclature.

Diastereomers: Threo and Erythro isomers.

Racemisation and resolution. Relative and absolute configuration.

Optical isomerism due to restricted rotation about single bonds- diphenyl systems.

Geometric isomerism: Determination of configuration of geometric isomers. Cis & trans, E, Z system of nomenclature. Geometric isomerism in oximes.

Alicyclic compounds: Conformations of four to eight membered cycloalkanes and disubstituted cyclohexanes.

Bicylic systems: Nomenclature and conformations of decalins and norbornane.

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UNIT-II

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Amines   5hours

Classification. Preparation of alkyl and aryl amines-reductive amination of carbonyl compounds, Gabriel phthalimde synthesis. Basicity of amines in aqueous solution: Inductive, resonance, steric and solvation effects on the basicity of amines. Reaction of amines as nucleophiles – Methylation, quarternary salts, Hoffmann elimination with mechanism. Distinguishing reactions of 1°, 2° and 3° amines.

Diazotization and synthetic applications of diazonium salts.Sandmeyer's reaction. (conversion to chlorobenzene, bromobenzene and benzonitrile), hydrolysis, reduction (to phenyl hydrazine and aniline), coupling reactions to give azo dyes (*p*-hydroxyazobenzene and 1-phenylazo-2-naphthol).

Heterocyclic compounds   4hours

Introduction, classification, structures, resonance and aromatic character of furan, pyrrole, thiophene and pyridine. Methods of preparation and reactions of pyrrole, furan, thiophene, pyridine. Mechanism of electrophilic substitution reactions. Comparison of basicity of pyrrole, pyridine and piperidine. Preparation and reactions of indole, quinoline and isoquinoline.

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UNIT-III

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Chemistry of Natural Products   10hours

Carbohydrates: Introduction and classification.

Monosaccharides: Aldoses, structures of all the D-aldohexoses. Elucidation of open chain structure of D-glucose.Mechanism of mutarotation and anomeric effect.Elucidation of ring structure of D-glucose in detail.

Ketoses: Fructose, interconversion of glucose and fructose.

Disaccharides: Glycosidic bond. Structures of maltose, lactose and sucrose-Haworth and conformational structures.

Terpenes and terpenoids: Occurrence, classification and isoprene rule. Elucidation of structure and synthesis of citral and zingiberene. Structures of limonene, menthol, α-terpineol, camphor, β-carotene, Vitamins-A and their uses.

Alkaloids: Introduction, classification and general characteristics. Structural elucidation and synthesis of nicotine. Structures and uses of ephedrine, caffeine, cocaine, atropine, quinine and morphine.

UNIT-IV

Spectroscopy of Organic compounds   **8 hours**

UV-Visible spectroscopy: Introduction. Chromophores and auxochormes; blue shift and red shift. Graphical representation of spectra of 1,3-butadiene, benzene and lycopene. Influence of conjugation on UV absorption-Comparison of UV spectra of acetone and methyl vinyl ketone.

IR spectroscopy: Introduction. Stretching frequencies of $-OH$ (free and H-bonded), alkyl $-C-H$, $C=C$, $C\equiv C$, $C-C$, $C=O$ and $C-O$ groups (by taking suitable examples). Graphical representation of IR spectra of benzoic acid and methyl benzoate.

NMR spectroscopy: Basic principles of proton magnetic resonance: Nuclear magnetic spin quantum number I, influence of the magnetic field on the spin of nuclei, spin population, saturation using radio frequency. Nuclear magnetic resonance.chemical shift (δ values), uses of TMS as reference. Nuclear shielding and deshielding effects. Equivalent and non-equivalent protons. Effect of electronegativity of adjacent atoms on chemical shift values. Spin-spin splitting and spin-spin coupling (qualitative treatment only).

Applications of NMR spectroscopy including identification of simple organic molecules. *Examples*: Shielding and deshielding effects for (i) methane (ii) CH_3-Cl (iii) CH_2Cl_2 (iv) $CHCl_3$. Spin-spin coupling in (i) Cl_2CHCHO (ii) 1,1,2-trichloroethane (iii) CH_3CH_2Cl.

Industrial Organic chemistry   **5 hours**

Synthetic dyes: Introduction and classification. Colour and constitution. Synthesis of congo red, malachite green, alizarin and indigo.

Drugs: Chemotherapy, classification of drugs. Synthesis and uses of paracetamol, diclofenac, ranitidine, sulphanilamide and chloramphenicol.

Introduction to Green Chemistry: Principles of Green chemistry and its application to the synthesis of paracetamol.

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B. Sc., - V Semester
Paper VI

UNIT-I

Electrochemistry I
10 hours

Review of electrolytes and Conductance related terms

Methods of determination of molar conductance. Conductometric titrations (only acid-base type). Transport numbers: definition – determination by moving boundary method. Causes of abnormal transport numbers observed in certain systems. Ionic mobility. Problems on transport numbers. Conductivity of water.

Kohlrausch's law and its applications: (i) evaluation of Λ_∞ from Λ, and Λ (ii) evaluation of degree of dissociation of a weak electrolyte (iii) evaluation of Λ_∞ of a weak electrolyte (iv) determination of solubility from conductance of saturated solutions of sparingly soluble salts ($AgCl$ and $BaSO_4$). Problems based on these.

Limitations of Arrhenius theory: qualitative account of Debye-Huckel theory, Debye-Huckel-Onsagar equation for aqueous solutions of 1:1 electrolytes. Verification of DHO equation.

Galavanic cell: conventions of representing galvanic cells-reversible and irreversible cells, derivation of Nernst equation for single electrode potential (free energy concept).

UNIT-II

Electrochemistry II
5 hours

Weston-cadmium cell:Determination of emf of a cell by compensation method. Determination of $E°$ of Zn/Zn^{2+} and Cu/Cu^{2+} electrodes.Liquid junction potentials, elimination of liquid junction potential.

Types of electrodes: Metal and gas electrodes (chlorine), metal/metal insoluble salt electrodes, redox electrodes. Reference electrodes-standard hydrogen electrode, calomel electrode, quinhydrone electrode and glass electrode. Determination of pH using these electrodes. Numerical problems.

Concentration cells: (i) emf of concentration cells (ii) determination of solubility of sparingly soluble salts and numerical problems. Redox electrodes, emf of redox electrodes. Potentiometric titration involving only redox systems.

Ionic equilibria
3 hours

Hydrolysis of salts of weak acids and weak bases.Ionic product of water. Relationship between K_h, K_w, K_a and K_b. Degree of hydrolysis and its relationship with K_h. Effect of temperature and dilution on degree of hydrolysis. pH of salt solutions. Problems.

Common-ion effect, buffers, buffer action and buffer capacity. pH of buffers. Henderson's equation and its derivation. Solubility product and ionic product in precipitation and in qualitative analysis.

Analytical and biological applications of buffers.

Theories of indicators.

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UNIT-III

Physical properties and Molecular structures   5 hours

Polarization and orientation of dipoles in an electric field. Dipole moment. Induced dipole moment (experimental determination of dipole moment not included). Clausius-Mossotti equation (only statement).Dipole moment and structure of molecules (planar and non-planar).

Magnetic properties-paramagnetic, diamagnetic and ferromagnetic systems. Electrical properties of solids: types of solids-metals, insulators and semiconductors. Pyroelectricity, piezoelectricity, ferroelectricity, inverse piezoelectricity. Thomson effect, Seebeck effect and Peltier effect-definition with examples.

Chemical Spectroscopy I   5 hours

The interaction of radiation with matter. Regions of electromagnetic spectrum and associated spectroscopic techniques.

Origin of molecular spectra: Born-Oppenheimer approximation.

Rotational spectra of diatomic molecules: Relationship between internuclear distance and moment of inertia. Expression for rotational energy. Numerical problems. Criterion for absorption of radiation-selection rule.

UNIT-IV

Chemical Spectroscopy II   4 hours

Vibrational spectroscopy: Hooke's law- Expression for the frequency of SHO-force constant and its significance. Expression for vibrational energy levels of SHO. Zero point energy., numerical problems. Degree of freedom of polyatomic molecules— modes of vibration for CO_2 and H_2O molecules.

Raman spectroscopy: 3 hours

Concept of polarisability. Pure rotation, vibration, qualitative study. Stokes and anti-Stoke's lines-selection rules.

Advantages of Raman spectroscopy over IR spectroscopy.
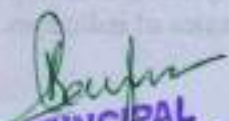
Electronic spectroscopy: Potential energy curves for bonding and antibonding molecular orbitals. Electronic transitions –qualitative description of non-bonding orbitals and transitions between them. Selection rules and Franck-Condon principle.

Electroanalytical Methods   5 hours

Voltammetry at a dropping mercury electrodes (DME)-Types of current obtained at DME. Ilkovic equation and its applications. Current –potential relation for a cathodic process – half wave potential.

Cyclic Voltammetry-Principles-Experimental set up-Quantitative analysis, determination of diffusion coefficients.

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UNIT-I

Coordination and Organometallic compounds I
10 hours

Coordination compounds, ligands and their classification (mono, bi, tri, tetra, penta and hexa dentate ligands) and ambidentate ligands, coordination number, nomenclature of coordination compounds in detail. Theories of structure and bonding (Explanation for the formation of complexes by Werner's Theory in detail and its limitations). EAN rule, Valence bond theory-postulates, low spin and high spin complexes with examples, limitations of VBT. Crystal field theory (octahedral, tetrahedral and square planar complexes). Crystal field splitting and crystal field stabilization energies, limitations of CFT. Magnetic properties of $[CoF_6]^{3-}$, $[Co(NH_3)_6]^{3+}$, $[Fe(CN)_6]^{4-}$, $[Fe(CN)_6]^{3-}$. Spectral properties of $[Ti(H_2O)_6]^{3+}$, $[Co(H_2O)_6]^{3+}$, $[CoCl_4]^{2-}$. Isomerism-Structural: ionization, linkage, hydrate and coordination isomerism with examples. Stereoisomerism-geometrical and optical isomerism with examples.
Organometallic compounds – ligands, classification (hapticity). Synthesis and structure of $K[PtCl_3(\eta^2\text{-}C_2H_4)]$ and $[Fe(\eta^5 \text{-} C_5H_5)_2]$.

UNIT-II

Coordination and Organometallic compounds II
4 hours

Metal carbonyls – $Cr(CO)_6$, $Co_2(CO)_8$, $Mn_2(CO)_{10}$; eighteen electron rule and its deviations with examples.
Applications of coordination/organometallic compounds: *cis*-platin in cancer therapy, Na_2Ca EDTA in the treatment of heavy metals (Pb, Hg) poisoning, Wilkinson's Catalyst in alkene hydrogenation, Monsanto acetic acid process.

Industrial Materials I
6 hours
Refractories: Properties, classification, determination of PCE values.
Abrasives – definition and classification with examples, applications, hardness, manufacture and importance of carborundum and tungsten carbide.
Glass: Properties, types, manufacture of soda glass. Composition and applications of borosilicate, metallic glass, optical glasses and polycarbonate glass, safety glass, fire and bullet proof glasses.
Ceramics: Raw materials and their roles, varieties of clay, production of ceramic ware, glazing, ceramic insulators.
Cement: Raw materials grades, manufacture of Portland cement (by wet process), setting of cement.

UNIT-III

Industrial Materials II
7 hours
Paints and Varnishes: Constituents of oil and emulsion paints and their role, constituents of varnishes.

Levels of organizations of Protein: Primary structure, Secondary structure (α-helix, triple helix eg., Collagen and β-pleated sheet), tertiary structure and forces stabilizing it, quaternary structure.

Denaturation and renaturation: Thermal renaturation-Aufinsen's experiment with ribonuclease.

Classification of proteins based on structure, composition and biological function (enzymes, hormones, transport agents, antibodies, structural materials with examples).

NUCLEIC ACIDS   3hours

Types–Components of nucleic acids, bases, nucleosides and nucleotides with structures. Partial structure of polynucleotide.

Structure of DNA (Watson-Crick model) and RNA. Biological roles of DNA and RNAs.
Protein-nucleic acid interaction- chromatin and viral nuclear capsid.

HORMONES   2hours
Definition.

Classification - a) amino acid derivatives (epinephrine and thyroxine); b) peptide (oxytocin and vasopressin) and polypeptide hormones (insulin and glucagon); c) Steroid hormones (progesterone, testosterone) with functions.

Role of insulin and glucagon in glucose homeostasis.

Mediators of hormone action – Ca^{2+}, cyclic AMP.

UNIT-III

ENZYMES   4hours
Introduction, Holo enzyme (apo enzyme and co enzyme).Active site, specificity.

Classification of enzymes (EC code number not required).

Enzyme substrate interaction- Fischer and Koshland models.

Enzyme kinetics–factors affecting rate of enzymatic reactions – enzyme concentration, substrate concentration, pH and temperature (mention M. M. equation).

Allosteric enzymes–definition and example

Enzyme inhibitions-Competitive, noncompetitive and uncompetitive inhibition with one example for each.

BIOLOGICAL OXIDATION   4hours
Bioenergetics- Introduction-stages of energy transformation. Exergonic and endergonic reactions. Relationship between ΔG and Keq.

High energy phosphates–definition, examples, structural features of ATP that makes ATP a high energy phosphate (electro static repulsion, opposing resonance, solvation of ATP).

Examples of high energy phosphates other than ATP. Energy coupling in biological reactions (explain the concept with suitable examples).

Biological oxidation – comparison of oxidation with combustion using glucose as an example. Redox potentials of some biological important half reactions. Calculation of energy yield from biological redox reaction (oxidation of NADH by oxygen, reduction of acetaldehyde by NADH). Mitochondrial electrotransport chain, oxidative phosphorylation. Substrate level phosphorylation.

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B.Sc., - VI SEMESTER

Paper – VIII

UNIT-I
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INTRODUCTION TO BIOCHEMSITRY   2hours

Contributions of Lavosier, Wohler, Emil Fischer, Louis Pasteur, Embden, Meyerhof, Parnas. Hans Kreb, Michaelis and Menton, Watson and Crick, Chargaff, H.G. Khorana, Knoop, Pauling, Hopkins and Miescher. Elemental and biochemical composition of living organisms. Role of water in biochemical systems (mention the properties of water which makes water a solvent of life).

CARBOHYDRATES   4hours

Structure and biological importance of derivatives of monosaccharides.

Amino sugars : β-D-glucosamine, galactosamine and their N-acetylated forms: N-acetylmuramic acid (NAMA); N-acetylneuraminic acid (NANA)

Sugar acids–structure and biological importance of D-gluconic acid, D-glucuronic acid and D-glucaric acid.

Sugar phosphates–structure and biological importance of Glucose-6-P, Fructose-6-P, Fructose-1,6-di-P, β-D-ribose-5-P and β-D-deoxyribose-5-P.

Structure and biological importance of oligosaccharides – isomaltose, cellobiose, trehalose.

Polysaccharides - source, comparative account of partial structure and biological function of starch, glycogen, cellulose, chitin and insulin.

LIPIDS   4hours

Introduction, Classification.

Fatty acids–definition, classification as saturated and unsaturated with examples and structure (lauric, myristic, palmitic, stearic, oleic, linoleic, linolenic and arachidonic acids). Essential fatty acids – definition with examples

Triglycerides–Structure of simple and mixed glycerides, properties of triglycerides- acid and alkali hydrolysis, saponification number and its significance, iodine number and its significance, rancidity (oxidative and hydrolytic), biological importance of triglycerides.

Phosphoglycerides – general structure of 3-Sn–phosphatidic acid, lipid bilayer (as in cell membrane), micelles, liposomes and its applications, structure and biological importance of lecithin, cephalin, phosphatidylserine, phosphatidylinositoL

Cholesterol – definition, types (HDL, LDL and VLDL)

Sphingolipids–structure and biological significance of ceramide.

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UNIT-II
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PROTEINS   5hours

α-amino acids: Introduction, structure, classification on the basis of polarity of R-groups, essential and non essential amino acids, ionic properties and reactions of amino acids with alcohol, nitrous acid and Ninhydrin.

Fuels: Characteristics, Calorific value and its determination using bomb calorimeter, Coal-Varieties, Gaseous fuels-advantages, constituents and their significance, production of Coal gas and composition of LPG. Octane number.

Explosives: Classification, preparation of dynamite and TNT.

Propellants: Characteristics, classification and their applications.

Bioinorganic Chemistry   **3 hours**

Essential and trace elements in biological systems with reference to Na^+, K^+, Ca^{2+}, Fe^{2+}, P, Cu, V and Ni, Metallo-porphyrins with special reference to haemoglobin, myoglobin and chlorophyll. Role of cobalamin (vitamin-B_{12}coenzyme) in living systems.

UNIT-IV

Chemistry of Newer materials   **10hours**

Conducting polymers: Introduction, definition and examples-polyaniline, polyacetylene. Mechanism of conduction. Qualitative treatment of doping,Properties: elasticity with high electrical conductivities, Engineering and biological applications.

Super conductors: Introduction, definition, type1, type 2 and atypical. Preparation of high temperature super conductor-$Y_1Ba_2Cu_3O_{x+\delta}$, BCS theory (qualitative treatment only) and general applications of high temperature super conductors.

Fullerenes: Introduction, definition, preparation and isolation of C_{60}. Structure and Chemical reactions (redox reactions, electrophilic aromatic substitution and bromination) of C_{60}.Commercial uses of C_{60}.Carbon nanotubes-Introduction, definition, examples and structure.

Nanomaterials: Introduction, definition and electronic structure. Different methods of production: Sol gel synthesis, inert gas condensation, mechanical alloying (ball milling), plasma synthesis, electrodeposition, and general applications.

BIOCHEMICAL TECHNIQUES   **2hours**
Principle and applications of:
- Paper chromatography and TLC.
- Electrophoresis–cellulose acetate membrane electrophoresis and PAGE.

UNIT-IV

METABOLISM   **6hours**
Catabolism and anabolism (explanation with an example) – Carbohydrate metabolism, glycolysis, fate of pyruvate. TCA cycle, energetic.
Gluconeogenesis–definition, synthesis of glucose from lactate.
Fatty acid metabolism–activation of fatty acids, role of carnitine, β-oxidation pathway, energetics.
Protein metabolism–general aspects of amino acid degradation – transamination, deamination and decarboxylation. Urea cycle.

MOLECULAR BIOLOGY   **4hours**
Central dogma of molecular biology–semi conservative replication and mechanism of DNA replication, transcription, translation.
DNA finger printing – Definition and its applications.

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CBCS , UG Economcis Syllabus – 2014
Bangalore University

FIRST SEMESTER					
I		Business Economics			
SECOND SEMESTER					
II		Managerial Economics			
THIRD SEMESTER					
III		a) Economics of Infrastructure **or**			
III		b) Monetary Economics			
FOURTH SEMESTER					
IV		a) International Business Environment **or**			
		b) Public Economics			
FIFTH SEMESTER					
V		Corporate Economics (Compulsory)			
		Electives			
		a) Mathematics for Economists			
		b) Rural Development & Cooperation			
		c) Economics of Tourism			
SIXTH SEMESTER					
VI		Human Resource Management (Compulsory)			
		Electives			
		a) Statistics for Economists			
		b) Karnataka Economy			
		c) Hospitality Economics			

ಪಠ್ಯಕ್ರಮ (ಮೊದಲನೆ ಸೆಮಿಸ್ಟರ್)

ಬಿ.ಎ/ ಬಿ.ಎಚ್.ಎಂ/ಬಿ.ಎಸ್.ಡಬ್ಲ್ಯ (ಮೂರು ವರ್ಷಗಳ ಅವಧಿಗೆ–2017–2020)

ಅಂಕಗಳು: 70

I. ಕಾವ್ಯ ಭಾಗ

೧. ನೆಲಕ್ಕಾರೊಳಂ ಪಂಥಮುಂಟೇ – ಪಂಪ

೨. ವಚನಗಳು – ಬಸವಣ್ಣ, ಆಯ್ದಕ್ಕಿ ಮಾರಯ್ಯ, ಅಮುಗೆ ರಾಯಮ್ಮ

೩. ದೇವರು ರುಜು ಮಾಡಿದನು – ಕುವೆಂಪು

೪. ಕವನ ಹುಟ್ಟುವ ಸಮಯ – ಕೆ.ಎಸ್. ನರಸಿಂಹಸ್ವಾಮಿ

II. ಕಥಾ ಸಾಹಿತ್ಯ

೧. ತಿರುಕಣ್ಣನ ಮತದಾನ – ನಿರಂಜನ

೨. ಪಂಜ್ರೊಳ್ಳಿ ಪಿಶಾಚಿಯ ಸವಾಲು – ಕೆ.ಪಿ. ಪೂರ್ಣಚಂದ್ರ ತೇಜಸ್ವಿ

೩. ಡಾಂಬರು ಬಂದುದು – ದೇವನೂರು ಮಹಾದೇವ

III. ಜಾನಪದ

೧. ತನ್ನನ್ನು ತಾನು ವರಿಸಿದ ರಾಜಕುಮಾರ – ಸಂಗ್ರಹ: ಎ.ಕೆ. ರಾಮಾನುಜನ್

೨. ಕೆಂಪೇಗೌಡರ ಲಾವಣಿ – ಸಂಗ್ರಹ: ಹೆಚ್.ಎಲ್. ನಾಗೇಗೌಡರು

೩. ಆದಿವಾಸಿ ಜಾನಪದ – ಜೀ.ಶಂ. ಪರಮಶಿವಯ್ಯ

IV. ಲೇಖನ ವೈವಿಧ್ಯ

೧. ಮಾನವತಾವಾದ ಎದುರಿಸುತ್ತಿರುವ ಬಿಕ್ಕಟ್ಟುಗಳು (ಭಾಗಗಳು) – ಜಿ.ಎಸ್. ಶಿವರುದ್ರಪ್ಪ

೨. ಬೆವರಿನ ಮನುಷ್ಯ ಡಾ. ರಾಜಕುಮಾರ್ –   ಪ್ರೊ. ಬರಗೂರು ರಾಮಚಂದ್ರಪ್ಪ

೩. ಕನ್ನಡವೇ ನನ್ನ ಧರ್ಮ – ಜಯದೇವಿ ತಾಯಿ ಲಿಗಾಡೆ

ನಿರ್ದೇಶಕರು
ಕನ್ನಡ ಅಧ್ಯಯನ ಕೇಂದ್ರ
ಬೆಂಗಳೂರು ವಿಶ್ವವಿದ್ಯಾಲಯ.

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ಬಿಕಾಂ (ಐದು ವರ್ಷಗಳ ಸಂಯೋಜಿತ ಎಂ.ಎ(ಮೂರು ವರ್ಷಗಳ ಅವಧಿಗೆ
2017–2020)

ಅಂಕಗಳು: 70

I. ಕಾವ್ಯ ಭಾಗ

೧. ಕುರುಕುಳಾಂತಕಂ ಗಳತಕೋಪನೆ [ಈ] ಭೀಮಂ – ರನ್ನ

೨. ವಚನಗಳು – ಜೇಡರ ದಾಸಿಮಯ್ಯ, ಬಸವಣ್ಣ, ನೀಲಮ್ಮ, ಮುಕ್ತಾಯಕ್ಕ

೩. ದೇವರು – ಪೂಜಾರಿ – ಕುವೆಂಪು

೪. ಗಂಗಾಮಾಯಿ – ಡಾ. ಚಂದ್ರಶೇಖರ ಕಂಬಾರ

II. ಕಥಾ ಸಾಹಿತ್ಯ

೧. ಸೆರೆ – ಯಶವಂತ ಚಿತ್ತಾಲ

೨. ರೊಟ್ಟಿ – ಪಿ.ಲಂಕೇಶ್

೩. ಜೀತ – ಬೆಸಗರಹಳ್ಳಿ ರಾಮಣ್ಣ

III. ಜಾನಪದ

೧. ಧೀರಕುಮಾರ – ಜನಪದ ಕತೆ

೨. ವೀರರಾಣಿ ಚೆನ್ನಮ್ಮ – [ಲಾವಣಿ] ಸಂಗ್ರಹ ದೇ.ಜವರೇಗೌಡ

೩. ಪ್ರಾಚೀನ ಕಲೆ ತೊಗಲುಗೊಂಬೆಯಾಟ – ಡಾ.ಡಿ.ಕೆ. ರಾಜೇಂದ್ರ

IV. ಲೇಖನ ವೈವಿಧ್ಯ

೧. ಕನ್ನಡ ಗ್ರಂಥೋದ್ಯಮ – ಶ್ರೀ ಮಾಧವ ಎನ್. ರಟ್ಟೀಹಳ್ಳಿ

೨. ಕನ್ನಡ ಅಂಕಣ ಸಾಹಿತ್ಯ – ಡಾ. ಸದಾನಂದ ಕನವಳ್ಳಿ

೩. ವ್ಯವಹಾರ ಮತ್ತು ನೈತಿಕತೆ – ಡಾ.ಜೆ.ಎನ್.ಮಲ್ಲಿಕಾರ್ಜುನಪ್ಪ.

ಪಠ್ಯಕ್ರಮ (ಮೊದಲನೆ ಸೆಮಿಸ್ಟರ್)
ಬಿ.ಎಸ್ಸಿ/ಎಂ.ಎಸ್ಸಿ ಐದು ವರ್ಷಗಳ ಸಂಯೋಜಿತ ಪದವಿ (ಮೂರು ವರ್ಷಗಳ ಅವಧಿಗೆ–2017–2020)

ಅಂಕಗಳು: 70

I. ಕಾವ್ಯ ಭಾಗ

ೞ. ಸಾಹಸಧನಂ ದುರ್ಯೋಧನಂ–ರನ್ನ

ಇ. ವಚನಗಳು – ಬಸವಣ್ಣ, ಅಲ್ಲಮ ಪ್ರಭು, ಅಕ್ಕಮಹಾದೇವಿ.

ಉ. ಚಿಗರಿಗಂಗಳ ಚೆಲುವಿ – ದ.ರಾ. ಬೇಂದ್ರೆ

ಎ. ಕುರಿಗಳ್, ಸಾರ್, ಕುರಿಗಳು – ಕೆ.ಎಸ್.ನಿಸಾರ್ ಅಹಮದ್.

II. ಕಥಾ ಸಾಹಿತ್ಯ

ೞ. ಮೋಚಿ – ಭಾರತೀಪ್ರಿಯ

ಉ. ನಿರಾಕರಣೆ – ವೀಣಾ ಶಾಂತೇಶ್ವರ

ಇ. ಕೂರ್ಮಾವತಾರ – ಕುಂ. ವೀರಭದ್ರಪ್ಪ

III. ಜಾನಪದ

ೞ. ನಾಲ್ವರು ಜಾಣರು

ಉ. ಮೈಸೂರು ದೊರೆ ಕಥೆ

ಇ. ಬೆಳ್ಳಿಂಗಪ್ಪನ ಪೂಜೆ

IV. ಲೇಖನ ವೈವಿಧ್ಯ

ೞ. ಒಂದು ಬೈಸಿಕಲ್ ಬೆಳಗ್ಗೆ – ಪಿ.ಲಂಕೇಶ್

ಉ. ಮುಸ್ಲಿಂ ಹುಡುಗಿ ಶಾಲೆ ಕಲಿತದ್ದು – ಸಾರಾ ಅಬೂಬ್‌ಕರ್

ಇ. ಇಲ್ಲಿ ಯಾರೂ ಮುಖ್ಯರಲ್ಲ – ಯಾರೂ ಅಮುಖ್ಯರಲ್ಲ – ಕೃಷಾಕರ, ಸೇನಾನಿ

ನಿರ್ದೇಶಕರು
ಕನ್ನಡ ಅಧ್ಯಯನ ಕೇಂದ್ರ
ಬೆಂಗಳೂರು ವಿಶ್ವವಿದ್ಯಾಲಯ.

PRINCIPAL
APS College of Arts & Science
H.S. Colony, Bangalore-560 019,

ಪಠ್ಯಕ್ರಮ (ಮೊದಲನೆ ಸೆಮಿಸ್ಟರ್)

ಬಿ.ಸಿ.ಎ (ಮೂರು ವರ್ಷಗಳ ಅವಧಿಗೆ 2017–2020)

ಅಂಕಗಳು: 70

I. ಕಾವ್ಯ ಭಾಗ

೧. ಬಿದಿಯ ಮಾಣುಗುಮೆ ಪೇಟ್ಟುಪದೇಶಂ – ನಾಗಚಂದ್ರ

ಇ. ವಚನಗಳು – ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾದೇವಿ, ಅಂಬಿಗರ ಚೌಡಯ್ಯ.

೨. ಅನ್ನಯಜ್ಞ – ದ.ರಾ. ಬೇಂದ್ರೆ

೪. ಸಂಪರ್ಕ – ಗಂಗಾಧರ ಚಿತ್ತಾಲ

II. ಕಥಾ ಸಾಹಿತ್ಯ

೧. ಪರೀಕ್ಷಿತ – ಚದುರಂಗ

೨. ಮಾಯಾಮೃಗ – ಪೂರ್ಣಚಂದ್ರ ತೇಜಸ್ವಿ

ಇ. ಪಾರಿವಾಳದ ರೆಕ್ಕೆಗಳ ಹಾಡು – ಭಾನು ಮುಷ್ಟಾಕ್

III. ಜಾನಪದ

೧. ಹೂ ಕೊಟ್ಟ ಚದುರೆ – ಜನಪದ ಕತೆ

೨. ಕೋಣವೇಗೌಡ – ಲಾವಣಿ

ಇ. ಜನಪದ ಸಾಹಿತ್ಯದ ಪುನರುಜ್ಜೀವನ – ಎಚ್.ಎಲ್. ನಾಗೇಗೌಡ

IV. ಲೇಖನ ವೈವಿಧ್ಯ

೧. ಗುಳೆ ಏಳುತ್ತಿರುವ ಗ್ರಾಮೀಣ ಶರಣರು – ಪ್ರಸನ್ನ

೨. ಕೋಟ ಮಿದುಳುಗಳ ಬೆಸೆಯುವ ಕೆಲಸ – ನಾಗೇಶ ಹೆಗಡೆ

ಇ. ಈ ಗೋಡೆ ಮೇಲೆ ಭಯಂಕರ ಬರಹ ಬೇಡ – ಡಾ. ಆರ್. ಪೂರ್ಣಿಮ

ನಿರ್ದೇಶಕರು

ಕನ್ನಡ ಅಧ್ಯಯನ ಕೇಂದ್ರ

ಬೆಂಗಳೂರು ವಿಶ್ವವಿದ್ಯಾಲಯ.

ಪಠ್ಯಕ್ರಮ (ಮೊದಲನೆ ಸೆಮಿಸ್ಟರ್)
ಬಿ.ಬಿ.ಎ (ಮೂರು ವರ್ಷಗಳ ಅವಧಿಗೆ–2017–2020)

ಅಂಕಗಳು: 70

I. ಕಾವ್ಯ ಭಾಗ

ೞ. ಸಂಧಿಮಾಟ್ಟುದುತ್ತಮ ಪಕ್ಷಂ – ರನ್ನ

 ಇ. ವಚನಗಳು – ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾದೇವಿ

 ೞ. ತುಂಗಭದ್ರೆ – ಕೆ.ಎಸ್. ನರಸಿಂಹಸ್ವಾಮಿ

ೞ. ವರ್ಧಮಾನ – ಎಂ. ಗೋಪಾಲಕೃಷ್ಣ ಅಡಿಗ

II. ಕಥಾ ಸಾಹಿತ್ಯ

ೞ. ನಾಲ್ಕು ಮೊಳ ಭೂಮಿ – ಚದುರಂಗ

ೞ. ಅಂಕ – ಬೊಳುವಾರು ಮಹಮದ್ ಕುಂಞ

ೞ. ಆಕ್ಕು – ವೈದೇಹಿ

III. ಜಾನಪದ

ೞ. ಘಾಟ ಸೊಸೆ – ಜನಪದ ಕತೆ

ೞ. ಹಲಗಲಿಯ ಬೇಡರು – [ಲಾವಣಿ]

ೞ. ಒಂದು ಅಪೂರ್ವ ಕಥನಗೀತೆ – ಗರತಿ ಗಂಗವ್ವ ಸಿ.ಪಿ.ಕೆ

IV. ಲೇಖನ ವೈವಿಧ್ಯ

ೞ. ನಮಗೆ ಬೇಕಾಗಿರುವ ಇಂಗ್ಲಿಷ್ – ಕುವೆಂಪು

ೞ. ವೃತ್ತ ಪತ್ರಿಕಾ ಸ್ವಾತಂತ್ರ್ಯ – ಡಿ.ವಿ.ಜಿ.

ೞ. ಇದೆಲ್ಲ ಹೇಗೆ ಶುರುವಾಯಿತು – ಮೂಲ: ರೋಸಾಪಾರ್ಕ್, ಅನುವಾದ: ಎಂ.ಆರ್. ಕಮಲ

ನಿರ್ದೇಶಕರು
ಕನ್ನಡ ಅಧ್ಯಯನ ಕೇಂದ್ರ
ಬೆಂಗಳೂರು ವಿಶ್ವವಿದ್ಯಾಲಯ.

ಪಠ್ಯಕ್ರಮ (ಮೊದಲನೆ ಸೆಮಿಸ್ಟರ್)
ಬಿ.ಎಸ್ಸಿ ಪ್ಯಾಡ್/ ಐ.ಡಿ.ಡಿ. (ಮೂರು ವರ್ಷಗಳ ಅವಧಿಗೆ 2017–2020)

ಅಂಕಗಳು: 70

I. ಕಾವ್ಯ ಭಾಗ

೧. ಸೋರ್ದ್ದು ಕೊಳಗೊಂಡ ಗರ್ವರಸಂ – ಪಂಪ

೨. ವಚನಗಳು – ದೇವರ ದಾಸಿಮಯ್ಯ, ಅಲ್ಲಮಪ್ರಭು, ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾದೇವಿ,

೩. ಬಾರೋ ಸಾಧನಕೇರಿಗೆ – ಅಂಬಿಕಾತನಯ ದತ್ತ

೪. ಪ್ರೀತಿ ಇಲ್ಲದ ಮೇಲೆ – ಜಿ.ಎಸ್. ಶಿವರುದ್ರಪ್ಪ

II. ಕಥಾ ಸಾಹಿತ್ಯ

೧. ಕೊನೆಯ ಗಿರಾಕಿ – ನಿರಂಜನ

೨. ತಾಯಿ – ಯು. ಆರ್. ಅನಂತಮೂರ್ತಿ

೩. ಕುಬುಸ – ಕುಂ. ವೀರಭದ್ರಪ್ಪ

III. ಜಾನಪದ

೧. ಹೂ ಬಿಡುವ ಮರ – ಸಂಗ್ರಹ ಎ.ಕೆ.ರಾಮಾನುಜನ್.

೨. ಸಂಗೊಳ್ಳಿ ರಾಯಣ್ಣನ ದಂಗೆ –

೩. ಮಾದಪ್ಪನ ಕತೆಯ ಸುತ್ತ ಮುತ್ತ – ಓ.ಎಲ್. ನಾಗಭೂಷಣ ಸ್ವಾಮಿ

IV. ಲೇಖನ ವೈವಿಧ್ಯ

೧. ಹೆಣ್ಣಿನ ಸ್ಥಾನ ಮಾನ – ಶರಚ್ಚಂದ್ರ ಚಟ್ಟೋಪಾಧ್ಯಯ

೨. ಇಂಡಿಯಾದ ದೇವ ಪುರುಷರು– ಡಾ.ಅಬ್ರಾಹಾಂ ಟಿ.ಕೋವೂರ್ ಅನುವಾದ ಮಾಯಿಗೌಡ

೩. ಮೊಲೆ ಮೂಡಿ ಬಂದರೆ ಹೆಣ್ಣೆಂಬರು – ಡಾ. ಎಚ್. ಎಸ್. ಶ್ರೀಮತಿ

ಬಿ.ಎ. ಕನ್ನಡ ಐಚ್ಛಿಕ ಪಠ್ಯ
ಪಠ್ಯಕ್ರಮ (ಮೊದಲನೆ ಸೆಮಿಸ್ಟರ್)
(ಮೂರು ವರ್ಷಗಳ ಅವಧಿಗೆ 2017–2020)

ಸಾಹಿತ್ಯ ಚರಿತ್ರೆ: ಪರಿಕಲ್ಪನೆಗಳು ಮತ್ತು ಹಳಗನ್ನಡ ಸಾಹಿತ್ಯ ಚರಿತ್ರೆ

ಅ. ಸಾಹಿತ್ಯ ಚರಿತ್ರೆಯ ಸಾಮಾಜಿಕ, ಸಾಂಸ್ಕೃತಿಕ ಮತ್ತು ಭಾಷಿಕ ನೆಲೆಗಳು. ಸಾಹಿತ್ಯ ಪರಂಪರೆಗಳ ಸ್ವರೂಪ

ಆ. ಶಾಸನಗಳು–ಶಾಸ್ತ್ರಗ್ರಂಥಗಳು–ಸಂಸ್ಕೃತ, ದ್ರಾವಿಡ ಮತ್ತು ಪ್ರಾಕೃತ ಹಿನ್ನೆಲೆ – ಜನಪದ ಸಾಹಿತ್ಯದ ಹಿನ್ನೆಲೆ

ಇ. ಚಂಪೂ ಯುಗ: ಪಂಪನಿಂದ ಹತ್ತೊಂಬತ್ತನೆಯ ಶತಮಾನದವರೆಗೆ. ಗದ್ಯವಿಕಾಸ: ಶಾಸನ ಗದ್ಯ, ವಡ್ಡಾರಾಧನೆ

ಈ. ಹಳಗನ್ನಡ ಸಾಹಿತ್ಯದ ಮುಖ್ಯ ಆಕರಗಳು ಮತ್ತು ಆಕೃತಿಗಳು. ಭಾಷೆ, ಛಂದಸ್ಸು ಮತ್ತು ಕಾವ್ಯತತ್ವಗಳ ಸ್ಥೂಲ ಪರಿಚಯ

೨. ನಡುಗನ್ನಡ ಸಾಹಿತ್ಯ ಚರಿತ್ರೆ

ಅ. ವಚನ, ಕೀರ್ತನೆ, ತತ್ವಪದ, ಜಾನಪದ.

ಆ. ರಗಳೆ, ಷಟ್ಪದಿ, ಸಾಂಗತ್ಯ, ತ್ರಿಪದಿ, ಗದ್ಯ

ಇ. ಈ ಸಾಹಿತ್ಯದ ಆಶಯ–ಆಕೃತಿ–ಕಾವ್ಯತತ್ವ

೩. ಕಾವ್ಯ ಭಾಗಗಳು: ಚಂಪೂ ಮತ್ತು ವಚನ

ಅ. ಪಂಪ: ಶ್ರೀಮತಿ–ವಜ್ರಜಂಘರ ಪ್ರಸಂಗ

ಆ. ವಡ್ಡಾರಾಧನೆ: ಕಾರ್ತಿಕ ಋಷಿಯ ಕಥೆ

ಇ. ರಗಳೆ: ಬೇಡರ ಕಣ್ಣಪ್ಪ ರಗಳೆ

೪. ನಡುಗನ್ನಡ ಕಾವ್ಯಭಾಗಗಳು: ಷಟ್ಪದಿ, ಕುಮಾರರಾಮನ ಸಾಂಗತ್ಯ, ಇತ್ಯಾದಿ

ಅ. ವಚನ, ಕೀರ್ತನ, ತತ್ವಪದ–ಆಶಯನಿಷ್ಠ ಆಯ್ಕೆ

ಆ. ರಾಘವಾಂಕ: ಬಿಲ್ಲೇಶ ಬೊಮ್ಮಯ್ಯನ ಕಥೆ

ಇ. ಕುಮಾರವ್ಯಾಸ: ಕಾವ್ಯತತ್ವ

ನಿರ್ದೇಶಕರು
ಕನ್ನಡ ಅಧ್ಯಯನ ಕೇಂದ್ರ
ಜ್ಞಾನಭಾರತಿ ಲಯ.
ಬೆಂಗಳೂರು ವಿಶ್ವವಿದ್ಯಾಲಯ.

ಕನ್ನಡ ಭಾಷಾ ಪಠ್ಯ

ಬಿ.ಎ ಮೊದಲನೆಯ ಸೆಮಿಸ್ಟರ್ (2020–21)

ಪರಿವಿಡಿ

ಮೊದಲ ಸೆಮಿಸ್ಟರ್ ಬಿ.ಎ. ಕನ್ನಡ ಪಠ್ಯಕ್ರಮ

I ಓಲುಮೆ:

ಗಿ. ವೆಂಕಟಶಾಮಿಯ ಪ್ರಣಯ   ಮಾಸ್ತಿ ವೆಂಕಟೇಶ ಅಯ್ಯಂಗಾರ್

ವಿ. ಪ್ರೀತಿ ಒಂದು ಕಲೆಯೆ?   ಮೂಲ: ಎರಿಕ್ ಫ್ರಾಂ

                    ಅನು: ಡಾ. ಕೆ.ವಿ. ನಾರಾಯಣ

                    ಡಾ. ಎಚ್.ಎಸ್. ರಾಘವೇಂದ್ರರಾವ್

ಖಿ. ನಿನ್ನೊಲುಮೆ   ಕೆ.ಎಸ್. ನರಸಿಂಹಸ್ವಾಮಿ

ಳ. ಆತ್ಮ ಸಂಗಾತಕ್ಕೆ ನೀನುಂಟು! (ಓದು ಪಠ್ಯ)   ಚಂದ್ರಶೇಖರ ಆಲೂರು

II ಪರಿಸರ:

ಗಿ. ಸಾಲದ ಮಗು   ಕುವೆಂಪು

ವಿ. ಹಾವಾಡಿಗರ ಹುಡುಗ   ಸು.ರಂ. ಎಕ್ಕುಂಡಿ

ಖಿ. ಹಗಂಟೂರು ಬಂದರು   ಡಾ. ಎಚ್. ನಾಗವೇಣಿ

ಳ. ಕೆನ್ನಾಯಿ (ಓದು ಪಠ್ಯ)   ಕೃಷಾಕರ–ಸೇನಾನಿ

III ದೇವರು:

ಗಿ. ದೇವರು: ಮಹತ್ವಗಳು, ಮೌಲ್ಯಗಳು   ಎ.ಎನ್. ಮೂರ್ತಿರಾವ್

ವಿ. ದೇವರು: ಗಿ. ಗಂಟೆ (ಜೆನ್ ಕಥೆ)   ಕೆ.ವಿ. ಸುಬ್ಬಣ್ಣ

          ವಿ. ಅನ್ವೇಷಣೆ   ಡಾ. ಜಿ.ಎಸ್. ಶಿವರುದ್ರಪ್ಪ

          ಖಿ. ವಚನ   ಅಲ್ಲಮ

          ಳ. ತ್ರಿಪದಿ   ಜನಪದ

ಖಿ. ದೇವರುಗಳ ರಾಜ್ಯದಲ್ಲಿ   ಬೊಳುವಾರು ಮಹಮದ್ ಕುಂಞ

ಳ. ದೈವ ಇದ್ದಲ್ಲಿ ದೇವರು ಇರತಾನ (ಓದು ಪಠ್ಯ)   ಜನಪದ

IV ಅಂತರಂಗ:

ಗಿ. ಸಾವಿತ್ರಿಬಾಯಿ ಫುಲೆ: ಸತ್ವಯುತ ಜೀವಸೆಲೆ   ಮೂಲ: ಸಿಂಥಿಯಾ ಸ್ಟೀಫನ್

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ಪರಿವಿಡಿ

ಕನ್ನಡ ಭಾಷಾ ಪಠ್ಯ

ಬಿ.ಬಿ.ಎ ಮೊದಲನೆಯ ಸೆಮಿಸ್ಟರ್ (2020–21)

ಬೆಂಗಳೂರು ನಗರ ವಿಶ್ವವಿದ್ಯಾನಿಲಯ

ಪರಿವಿಡಿ
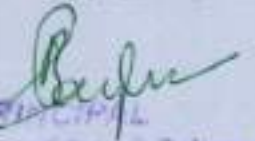
ಕನ್ನಡ ಭಾಷಾ ಪಠ್ಯ

ಬಿ.ಸಿ.ಎ ಮೊದಲನೆಯ ಸೆಮಿಸ್ಟರ್ (2020–21)

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ಪರಿವಿಡಿ

I. ಪ್ರೀತಿ

ಬದುಕಿನ ಬಗೆಗಿನ ಗಾಢವಾದ ಆಶಾವಾದವೇ ಪ್ರೀತಿ. ಒಂದು ಅಮೂರ್ತ ಕಲ್ಪನೆಯಾಗಿರುವ ಪ್ರೀತಿಯ ಇತರ ವೃತ್ತಿಯ ಬಗೆಗಿನ ನಿಷ್ಠಕ್ಕಲವಾದ ಕಾಳಜಿಯಾಗಿದೆ. ಪ್ರೀತಿಯ ಅವಿರ್ಭಾವನೀಯವಾದ ಭಾವನೆಗಳನ್ನು ಸಾಮಾನ್ಯವಾಗಿ ಸೂಚಿಸುತ್ತದೆಯಾದರೂ ಆಳದಲ್ಲಿ ಸಹಾನುಭೂತಿ, ಅನುಕಂಪ, ದಯೆ, ಅನುರಾಗಗಳನ್ನೊಳಗೊಂಡಿರುತ್ತದೆ. ಬಡ್ಡ ಮನುಕುಲದ ಸಂಕಷ್ಟಗಳಿಗೆ ಪರಿಹಾರವನ್ನು ಕಾಣಲೆಂದು ರಾಜ್ಯವನ್ನು ತೊರೆದನು. ಮುಂದೆ ಮೋಕ್ಷದಸ್ಥರಸುತ್ತ ಪ್ರೀತಿಯ ಬಂಧನದಲ್ಲಿ ಸಿಲುಕಿದನು. ಬಸವಣ್ಣನವರು ಸಕಲ ಜೀವಾದಳಿಗೆ ಲೇಸನ್ನು ಬಯಸುವುದೇ ಪ್ರೀತಿಯಾಗಿದ್ದು, ದಯೆಯೇ ಧರ್ಮದ ಮೂಲವೆಂದಿದ್ದಾರೆ. ಯೇಸು ಕ್ರಿಸ್ತ ನಿಷ್ಠಕ್ಕಲವಾದ ಪ್ರೀತಿಯಳ್ಳವನಾಗಿ ತತ್ವಗಳನ್ನು ಕ್ಷಮಿಸಿದ. ತ್ಯಾಗ, ಬಲಿದಾನ, ಕ್ಷಮೆಗಳು ಪ್ರೀತಿಯ ದಾರಿಗಳೆಂದು ಓಶೋ ಸಾರಿದ್ದಾರೆ. ಪ್ರೀತಿ ಎಲ್ಲದಕ್ಕೂ ಬಯಸುತ್ತದೆಯೆಂದು ಪರ್ಬಲ್ ಹೇಳದೆ, ನಿಮಗೆ ಬೇಕಿರುವುದು ಪ್ರೀತಿ ಮಾತ್ರ ಎಂದು ಬೀಟಲ್ ಹೇಳುತ್ತಾರೆ. ಲೀಬ್ಸಿಜ್ ಎಂಬ ತತ್ವ ಚ್ಯಾನ್ಸಿ ಪ್ರೀತಿ ಎನ್ನುವುದು ಆಕ್ಕರ ಸಂತೋಷದಿಂದ ಹೊಂದುವ ಪರಮಾನಂದವೆಂದು ಹೇಳಿದ್ದಾನೆ.

ಪ್ರೀತಿಯನ್ನು ಪಡೆಯಲು ಹೇಸಿನವರು ಹೇರಳವಾಗಿರುವಂತೆ ಇರುವ ಪ್ರೀತಿಯನ್ನು ಉಳಿಸಿಕೊಳ್ಳಲು ಹೋರಾಡಿದವರು ಚರಿತ್ರೆಯಲ್ಲಿ ಕಾಣಸಿಗುತ್ತಾರೆ. ಪ್ರೀತಿಯೆಂಬುದು ಪಡೆಯುವುದಲ್ಲ, ಅದು ಕೊಡುವುದೆಂದು ಸಂತರು ಸೂಫಿಗಳು ಸಾರಿದ್ದಾರೆ. ತಾಯಿ ಮತ್ತು ಸಮಾಜ, ಬಂಧು–ಬಳಗ, ವಸ್ತು, ಊರು– ದೇಶ – ಜಗತ್ತು, ಕಾಲ ಪ್ರೀತಿಯ ಪ್ರಭೇಶವಾಗಿದೆ. ತೀರ ಧ್ಯೆಯಕ್ಷತೆಯಿಂದ ಓದಿದು ವಿಶ್ಚಾಶಕತೆಯವರೆಗೂ ಪ್ರೀತಿಯ ವ್ಯಾಪ್ತಾನ ಏಶ್ಚಾರವಾಗಿದೆ. ಕಾಯಿ ಮತ್ತು ಮನುವಿನ ಪ್ರೀತಿಗೆ ಸಾಟಿಯೇ ಇಲ್ಲ. ವಿಶ್ಚದಲ್ಲಿ ಕಾಣಬರುವುದು ಪ್ರೀತಿ ತತ್ವ ನಾಗಿದೆ. : ಬಿ.ಎಸ್. ಶಿವರುದ್ರಪ್ಪನವರು "ಪ್ರೀತಿಯಿಲ್ಲದೆ ಹೂವು ಅರಳೀತು ಹೇಗೆ" ಎಂದು ಪ್ರಶ್ನಿಸುತ್ತಲೇ ಪ್ರೀತಿಯ ಮಹತ್ವನನ್ನು ಅರಹುತ್ತಾರೆ.

ಕನ್ನಡ ಭಾಷಾ ಪಠ್ಯ

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ಪರಿವಿಡಿ