	10. Nyâya - Vaiśesika : Theory of Categories; Theory of Pramâna; Self; Theory of Causation;
	Atomistic Theory of Creation.
	11. Sâmkhya : Prakrti; Puruşa; Causation; Theory of Evolution.
	12. Yoga : Citta; Cittavŗtti.
	13. Mîmâmsâ : Epistemology; Theory of Validity.
	14. Vedânta : Views of Śamkara and Râmânuja on Brahman; Îśvara; Âtman; Jîva; Jagat; Mâyâ;
	Avidyâ; Adhyâsa.
	15. Swâmi Vivekânanda : Practical Vedânta.
	16. Sri Aurobindo : Evolution; Involution; Integral Yoga.
	17. Rabindranath Tagore: Nature of Man; Surplus in Man.
Paper - II :	Socio – Political Philosophy and Psychology
- 1	
	1. Social and Political Ideals : Equality, Justice, Liberty: Views of Mill, Locke, Rawls,
	2. Individual and State : Rights. Duties and Accountability.
	3. Political Ideologies : Anarchism, Marxism, Socialism and Democracy.
	4 Humanism: Secularism: Multiculturalism
	5 Social Change : Gandhi Ambedkar
	6 Mind – Body Problem : Dualism Philosophical Behaviourism Person Theory of Strawson
	7 Lovels of Mind: Proofs for the existence of the unconscious: Froud's theory of droam citta
	cittautti (Voca)
	Ethics and Philosophy of Poligian
	8. Standards of Morality : Utilitarianism (Bentham and Mill), Deontological Theories.
	9. Virtue Ethics : Aristotle.
	10. Human Rights and Discrimination.
	11. Feminism : Liberal and Radical.
	12. Environmental Ethics : Bio-centric ethics and Eco-centric ethics.
	13. Theories of Punishment; Capital Punishment.
	14. Terrorism and Just war.
	15. Indian Ethics : Purusârtha, Concept of Liberation, Anuvrata and Mahâvrata (Jainism),
	Brahmavihâra (Buddhism).
	16. Proofs for the existence of God : Descartes, St. Anselm, Naivâvikas.
	17. Religion without God, Religion and Morality.
	18. Religious Pluralism.
	19. Nature of Religious Language : Cognitive and Non-cognitive. Analogical and Symbolic.
Paper – I :	1. Biophysical Principles :
	Definition and example of osmosis and buffers; Definition of pH.
	2 Biochemical Principles
	Definition and chemistry of monosaccharides, oligosaccharides, polysaccharides, triglycerides,
	cholesterol, HDL, LDL, VLDL; amino acides, nucleotides.
	3. Metabolism :
	Glycolysis, TCA Cycle, β -oxidation, deamination, transamination.
	4. Nutrition & Dietetics :
	Definition of food groups, Balanced diet and ACU. Source, functions and deficiency symptoms of
	vitamin A, B ₁ , B ₆ , B ₁₂ , C, D, E, and Fe, Zn, Na, K, Ca, I.
	5. Blood :
	Formed elements of blood, functions of hemoglobin; plasma protein. ABO and Rh Blood groups. Overview of innate and acquired immunity.
	6. Heart and circulation :
	Properties of cardiac muscle, cardiac cycle, definition and determination of cardiac output,
	7. Respiratory System : Carriage of oxygen and carbondioxide, definition of lung volumes and capacities, hypoxia.
	8. Renal Physiology :
	Structure of nephron, formation of urine, non excretory functions of kidney.

Paper – II :	1. Nerve-Muscle Physiology: Structure and functions of skeletal muscle & nerve fibre,
	classification of nerve fibres, neuromuscular junction, neuromuscular transmission, synaptic transmission, origin and propagation of nerve impulse, degeneration and regeneration in nerve fibres.
	2. Nervous system : Basic anatomical organization of the neurons system, ascending and
	descending tracts, reflex arc, classification and properties of reflexes, functions of sympathetic and parasympathetic neurons system, sleep, memory, learning and aphasia.
	3 Sensory physiology: Eve-structure of retina accommodation myonia hypermetronia and
	astigmatism; Ear-structure of middle and inner ear, transmission of sound wave through ear; structure of taste buds and smell receptors.
	4. Skin and body temperature regulation: structure and functions of skin and sweat glands, neural and hormonal control of body temperature.
	5. Endocrine system: structure and functions of pituitary, thyroid, parathyroid, pancreas and adrenal gland diseases associated with hypo and hypersecretion of these glands.
	6. Reproductive physiology: Histology of testis and ovary, spermatogenesis, ovulation, menstrual cycle.
	7. Work physiology: Definition of 0 ₂ debt, 0 ₂ max, static work, dynamic work and physical fitness index (PFI), Body Mass Index (BMI).
	8. Environmental and social physiology: Air, water and noise pollution, mass immunization, ORS and concept of safe drinking water.
PHYSICS :	•
Paper – I :	1. Mechanics:
	a) Particle dynamics: Laws of motion, conservation principles. Inertia and inertial frame, Centripetal and Coriolis acceleration. Motion under a central force, Kepler's laws. Gravitational Field and potential - simple examples. System of particles, centre of mass and laboratory reference frame. Elastic and inelastic collision.
	Generalised coordinate, degrees of freedom. Lagrange's and Hamilton's equations- simple applications. Hamilton's principle.
	b) Rigid body dynamics: Degrees of freedom of a rigid body. Euler angle. Moment of Inertia, parallel and perpendicular axes theorem.
	c) Properties of matter & fluid dynamics: Elasticity. Surface Tension. Viscosity. Equation of continuity. Bernoulli's equation.
	2. Special Relativity:
	Michelson-Morley experiment. Lorentz transformation, length contraction, time dilation, addition of velocities. Doppler effect, relativistic kinematics, mass energy relation. Four vector and covariance.
	3. Waves and Oscillations:
	a) Oscillation: Simple harmonic motion, damped oscillation, forced oscillation and resonance. Fourier series and its simple applications. Superposition, beats.
	b) Waves: Equation of progressive wave, wave packets, phase and group velocities. Stationary waves, reflection and refraction from Huygen's principle.
	c) Geometrical Optics: Fermat's principle and laws of reflection and refraction. Matrix method in paraxial optics, thin lens formula, nodal points, two thin lenses separated by a distance. Chromatic and spherical aberration (qualitative).
	d) Physical Optics: Spatial and temporal coherence. Interference of light, Young's experiment. Stoke's law, thin films. Newton's ring. Michelson interferometer.
	Fraunhofer diffraction – single slit, double slit, diffraction grating. Fresnel diffraction, Zone plate.
	e) Polarization: Linear and circularly polarized light, double refraction, quarter wave plate. Optical activity. Polarimeter.
	f) Laser: Einstein A and B coefficients. Ruby and He-Ne lasers.
	4. Electricity and Magnetism:
	a) Electrostatics & Magnetostatics: Gauss and Stoke's theorem. Laplace and Poisson equations and boundary value problems. System of charges, multipole expansion of scalar potential. Method of images and its applications. Dipole field and potential. Dipole in an external field. Dielectrics, polarization. Boundary value problems for conducting & dielectric spheres in a uniform field.
	Magnetic shell, uniformly magnetized sphere. Ferro-, para- and diamagnetic substances. Hysteresis in ferromagnetic materials.