SYLLABI FOR THE DAV APTITUDE TEST-2025

SCIENCE AND INTEGRATED WING

Subject	Syllabus	No of Questions
MATHEMATICS	**Pair of Linear Equations in two variables:** Pair of linear equations in two variables and graphical method of their solution, consistency/inconsistency. Algebraic conditions for number of solutions. Solution of a pair of linear equations in two variables algebraically - by substitution, by elimination. Simple situational problems. **Quadratic Equation:** Standard form of a quadratic equation $ax^2 + bx + c = 0$ ($a \neq 0$), solution of quadratic equations (only real roots) by factorisation, relationship between discriminant and nature of roots, problems related to day-to-day activities. **Trigonometry:** Trigonometric ratios and identities, height and distances. **Probability:** Elementary ideas of probabilities as measure of uncertainty (for single event only) **Co-ordinate Geometry:** Distance between two points, section formula (internal division) only **Mensuration:** Problems on finding volumes and surface areas of combinations of right circular cone, right circular cylinder, hemisphere and sphere, perimeter, area of a circle, area of a sector, segment of the circles, area of combined figures. **Polynomial:** Zeros of a polynomial, relationship between zeros and coefficients of a quadratic polynomial. **Real number:** Fundamental theorem of arithmetic, irrational number and their decimal expansion. **Geometry:** Similar triangles and its properties, Pythagoras theorem. Arc and chord of a circle, congruence, cyclic quadrilaterals, tangents to circles. **Arithmetic Progressions:** Derivation of the nth term and sum of the first n^{th} terms of A.P. and their application in solving daily life problems. **Statistics:** Mean, median and mode of grouped data (bimodal situation to be avoided)	**(40)**
PHYSICS	**Motion & Force:** Distance and displacement, Velocity (uniform and non-uniform), Distance – time and velocity – time graph, Newton's Laws of motion, Action & reaction force, Inertia of a body, Momentum. **Effects of current:** Electric current, potential difference and electric current, Ohm's law, Resistance, Resistivity, Factors on which the resistance of a conductor depends. Series combination of resistors, parallel combination of resistors and its applications in daily life. Heating effect of electric current and its applications in daily life. Electric power, interrelation between P, V, I and R. **Magnetic effects of current:** Magnetic field, Field lines, field due to current carrying conductor, field due to current carrying coils or solenoid: Force on current carrying conductor. Flemings left hand rule, Direct current. Alternating current: frequency of AC. Advantage of AC over DC. Domestic electric circuits. **Light & Optical Phenomenon:** Reflection of light at plane and curved surfaces. Images formed by spherical mirror, centre of curvature, principal axis, principal focus, focal length, mirror formula, magnification. Refraction, Laws of Refraction, Refractive index, Refraction of light by slab and spherical lens, image formed by spherical lens, Lens formula, Magnification, Power of a lens. Refraction of light through a prism, Dispersion of light, scattering of light, application in daily life.	**(20)**

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	Gravitation: Universal law of gravitation, Force of gravitation of the earth (Gravity, acceleration due to gravity, mass & weight, Free fall) **Work, Energy, Power:** Work done by a force, Energy, Power, Kinetic & Potential energy, Law of conservation of energy. Relation between kinetic energy and momentum.	
CHEMISTRY	**Atoms and Molecules:** Laws of chemical combination, Atoms and atomic theory of matter, Dalton's Atomic theory, Atoms, Molecules, ions, Rules of writing the chemical formulae, Molecular mass. **Structure of Atom:** Discovery of electron, Discovery of proton, Discovery of neutron, Thomson's model of the atom, Rutherford's model of atom, Bohr's model of atom, Atomic number, Mass number, Electronic configuration, Valence electrons, Valency of elements, Isotopes, Isobars. **Chemical Reactions and Equations:** Chemical equations, Balanced chemical equations, Types of chemical reactions, corrosion, Rancidity **Acids, Bases and Salts:** Definitions (all modern concepts), Neutralization reactions, pH scale, Acidic salt, basic salt, Properties of acids and bases, Uses of sodium hydroxide, Bleaching powder, Baking soda, Washing soda, Plaster of Paris, Gypsum, Water of Crystallization **Metals and Non-Metals:** Physical and Chemical properties of metals and non-metals, Reactivity series, Formation & properties of ionic compounds, Basic metallurgical processes, Alloy **Carbon Compounds:** Catenation, Functional group, Structural isomerism (chain and position), Nomenclature of organic compounds containing functional groups, Chemical properties (combustion, oxidation, addition and substitution reaction), Ethanol & Ethanoic acid (only properties & uses), soaps & detergents, Allotropes of carbon, Electron dot structure.	**(20)**
BIOLOGY	**Fundamental unit of life:** Cell - structure, function, cell membrane, cell components, cell wall, mitochondria, chloroplast etc. Difference between Prokaryotes & Eukaryotes, Cell inclusion bodies, Vacuoles, Endoplasmic reticulum, Golgi apparatus, Nucleus, Chromosomes-basic structure, number. **Life Processes:** Living being, Basic concept of nutrition, Nutrition-autotrophic and heterotrophic nutrition, human digestive system, Respiration- respiration in plants and animals, human respiratory system, Transportation- transportation in plants, transpiration, opening and closing of stomata, human circulatory system, Excretion-excretion in plants and animal, human excretory system. **Control and Co-ordination in Animals and Plants:** Trophic movements in plants, Introduction of plant hormones, Control and co-ordination in animals, Nervous system, Voluntary, involuntary & reflex action **Reproduction:** Types of reproduction, Types of asexual mode of reproduction, Sexual reproduction in plants and animals, Human reproductive systems, Reproductive Health - need & methods of family planning, safe sex Vs. HIV/AIDS, child bearing and women's health **Heredity:** Heredity and Law of inheritance of traits, Monohybrid and dihybrid cross, Sex determination: brief introduction **Our environment:** Structure of ecosystem - abiotic and biotic components, Function of ecosystem - food chain, food web. energy flow and ecological pyramid, Environmental pollution, Environmental problems, Ozone depletion **Tissues, Organs, Organ system, Organism:** Structure & functions of animal and plant tissues (only four types of tissues in animals, Meristematic & permanent tissues in plants).	**(20)**

COMMERCE

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MATHEMATICS	**Pair of Linear Equations in two variables:** Pair of linear equations in two variables and graphical method of their solution, consistency/inconsistency. Algebraic conditions for number of solutions. Solution of a pair of linear equations in two variables algebraically - by substitution, by elimination. Simple situational problems. **Quadratic Equation:** Standard form of a quadratic equation $ax^2 + bx + c = 0$ ($a \neq 0$), solution of quadratic equations (only real roots) by factorisation, relationship between discriminant and nature of roots, problems related to day-to-day activities. **Trigonometry:** Trigonometric ratios and identities, height and distances. **Probability:** Elementary ideas of probabilities as measure of uncertainty (for single event only) **Co-ordinate Geometry:** Distance between two points, section formula (internal division) only **Polynomial:** Zeros of a polynomial, relationship between zeros and coefficients of a quadratic polynomial. **Real number:** Fundamental theorem of arithmetic, irrational number and their decimal expansion. **Arithmetic Progressions:** Derivation of the nth term and sum of the first n^{th} terms of A.P. and their application in solving daily life problems. **Statistics:** Mean, median and mode of grouped data (bimodal situation to be avoided)	**(30)**
ECONOMICS	Banking Services in India, Economic Reforms in India, Statistics (Mean, Median & Mode), Poverty in India, Economic Development, Sectors of the Indian Economy, Food Security in India, Consumer Awareness.	**(20)**
ENGLISH	Integrated Grammar (Determiners, Clauses, Tenses, Modals, Subject – verb concord, Reported speech), Synonyms & Antonyms, One-word substitution.	**(30)**

HUMANITIES

Subject	Syllabus	No of Questions
ENGLISH	Integrated Grammar (Determiners, Clauses, Tenses, Modals, Subject – verb concord, Reported speech), Synonyms & Antonyms, One-word substitution.	**(30)**
SOCIAL SCIENCE	**ECONOMICS:** Banking Services in India, Economic Reforms in India, Statistics (Mean, Median & Mode), Poverty in India, Economic Development, Sectors of the Indian Economy, Food Security in India, Consumer Awareness.	**(10)**
	HISTORY: French Revolution, The Socialism in Europe and the Russian Revolution, Nazism and the Rise of Hitler, The rise of Nationalism in Europe, Nationalism in India, The making of global world (NCERT Textbook Pg. No. 1.1 to 1.3).	**(15)**
	GEOGRAPHY: Resources – Utilisation and Development, Agriculture, Manufacturing Industries, Lifelines of National Economy, Forest, Water Resource, Mineral Resource.	**(10)**
	POLITICAL SCIENCE: What is Democracy? Why Democracy? Constitutional Design, Electoral Politics, Power sharing, Federalism, Political Parties, Outcomes of Democracy, Gender, Religion & Caste.	**(15)**

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