

Syllabus for Admission Test

Class XI (Science)

A. ENGLISH:

1. Comprehension passage
2. Article writing
3. Grammar
 - (a) Unjumble into meaningful sentences
 - (b) Change voice
 - (c) Change Narration
 - (d) Application of Tense
 - (e) Fill in the blanks with Determiners
 - (f) Error correction.

B. MATHEMATICS

REAL NUMBERS: Euclid's division lemma, Fundamental Theorem of Arithmetic – statements and examples; Proofs of results - irrationality of $\sqrt{2}$, $\sqrt{3}$, $\sqrt{5}$, decimal expansions of rational numbers in terms of terminating/non-terminating recurring decimals. **POLYNOMIALS:** Zeros of a polynomial. Relationship between zeros and coefficients of quadratic polynomials. Statement and simple problems on division algorithm for polynomials with real coefficients. **PAIR OF LINEAR EQUATIONS IN TWO VARIABLES:** Pair of linear equations in two variables and their graphical solution. Geometric representation of different possibilities of solutions/inconsistency. Algebraic conditions for number of solutions. Solution of a pair of linear equations in two variables algebraically - by substitution, by elimination and by cross multiplication method. **TRIANGLES:** Definitions, Theorems, examples, counter examples of similar triangles. **CIRCLES:** Tangents to a circle (Prove: The tangent at any point of a circle is perpendicular to the radius through the point of contact; The lengths of tangents drawn from an external point to circle are equal.) **CONSTRUCTIONS:** Division of a line segment in a given ratio (internally), Tangent to a circle from a point outside it, Construction of a triangle similar to a given triangle. **TRIGONOMETRY:** Trigonometric ratios of an acute angle of a right-angled triangle. Proof of their existence, Values (with proofs) of the trigonometric ratios of 30° , 45° , 60° and 90° Relationships between the ratios.

TRIGONOMETRIC IDENTITIES :Proof and applications of the basic trigonometric identities, Trigonometric ratios of complementary angles. **STATISTICS**: Mean, median and mode of grouped data ,Cumulative frequency graph. **QUADRATIC EQUATIONS**: Standard form of a quadratic equation $ax^2 + bx + c = 0$, ($a \neq 0$). Solution of the quadratic equations(only real roots) by factorization, by completing the square and by using quadratic formula. Relationship between discriminant and nature of roots. Problems related to day to day activities. **ARITHMETIC PROGRESSIONS**: Derivation of standard results of finding the n^{th} term and sum of first n terms and examples. **HEIGHTS AND DISTANCES**: Simple and believable problems on heights and distances. Problems should not involve more than two right triangles. Angles of elevation / depression should be only 30° , 45° and 60° . **STATISTICS AND PROBABILITY**: Classical definition of probability. Connection with probability as given in Class IX. Simple problems on single events, not using set notation. **COORDINATE GEOMETRY: LINES** (In two-dimensions) Review the concepts of coordinate geometry done earlier including graphs of linear equations. Awareness of geometrical representation of quadratic polynomials. Distance between two points and section formula (internal). Area of a triangle. **MENSURATION: AREAS RELATED TO CIRCLES**: Area of a circle; area of sectors and segments of a circle. Problems based on areas and perimeter / circumference of the above said plane figures. (central angle of 60° , 90° and 120° only. Plane figures involving triangles, simple quadrilaterals and circle.) **SURFACE AREAS AND VOLUMES**: Problems on finding surface areas and volumes of combinations of any two of the following: cubes, cuboids, spheres, hemispheres and right circular cylinders/cones. Frustum of a cone. Problems involving converting one type of metallic solid into another and other mixed problems. (Internal) Area of a triangle. **TEST OF REASONING**: Verbal & Logical

C. PHYSICS

Electricity : 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, Inter relation between P, V, I & R. **Magnetic effects of Current:** Magnetic field, field lines, field due to a current carrying conductor, field due to current carrying coil or solenoid Force on current carrying conductor, Fleming's left hand rule. Electromagnetic induction. Induced potential difference, Induced current. Fleming's Right Hand Rule, Direct current. Alternating current: Frequency of AC. Advantage of AC over DC. Domestic electric circuits. **Light & Human Eyes:** Reflection of light at curved surface, 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 spherical lens, Image formed by spherical lenses, Lens formula, Magnification. Power of lens, Functioning of a lens in human eye, defects of vision and their corrections, applications of spherical mirrors and lenses. Refraction of light through a prism. Dispersion of light, scattering of light, applications in daily life.

D. CHEMISTRY

Chemical reactions : Chemical equation, balanced chemical equation, Types of chemical reactions, combination, decomposition, displacement, double displacement, precipitation, neutralization, oxidation and reduction. **Acid bases and salts:** Definition, general properties, examples and uses, concept of PH scale, Indicators and their uses, Preparation and uses of sodium hydroxide, Bleaching powder, Baking soda, washing soda, and Plaster of Paris. **Metals and Non-Metals:** Properties, reactivity series, Ionic compound- Formation and properties, basic metallurgical process. **Carbon compound:** Covalent bonding in carbon compound, versatile nature of carbon, Homologous series, Nomenclature of carbon compounds containing functional group (Halogens, alcohols, ketones, aldehydes, alkanes and alkynes), difference between

saturated and unsaturated Hydrocarbons, chemical properties of carbon compounds (Combination, addition, Oxidation, Substitution). Ethanol and Ethanoic acid (only properties and uses); soaps and detergents. Periodic Classification of Elements: Need for classification, Modern periodic table, gradation in properties, valency, Atomic number, Metallic and non-Metallic Properties.

E. BIOLOGY

Life Process: Basic concept of Nutrition, Respiration, Transportation and Excretion in plants and animals. Control and co-ordinations in plants. Tropic movement in plants, introduction of plant hormones, control and co-ordination in animals Nervous System: Voluntary, Involuntary and reflex action, chemical co-ordination and animal hormones.

Reproduction : Reproduction in animals and plants. Reproductive health need for the method of family planning, safe sex vs HIV/AIDS. Child bearing and women's health. **Heredity**

and Evolution : Heredity Mendel's contribution- laws of inheritance of traits. Sex determination, brief introduction. Basic concept of Evolution. **Our Environment**: Ecosystem, Environmental problems. Ozone depletion, waste production and their solutions. Biodegradable and non-biodegradable substances.

Syllabus for Class XI (COMMERCE Stream)

A. ENGLISH (syllabus as per Science stream)

B. MATHEMATICS (syllabus as per Science stream)

C. ECONOMICS (Commerce & Arts streams)

Development: What development promises different people Different goals. Income and other Goals. Natural development. How to compare different countries or state. Income and other cities. Public facilities. Sustainability of development. Sectors of the Indian Economy: Sector of Economic Activities. Comparing The Three sectors. Historical changes in sectors. Primary, Secondary and Tertiary Sectors in India. Where are most of the people employed? How to create more employment? Division of

sectors as organized and unorganized. How to protect workers in the Unorganized Sector? Money and Credit: Barter System, Money as a medium of Exchange. Modern forms of money. Loan Activities of Banks. Two different credit situations. Term of credits. Formal sector credit in India. Formal and Informal Credit who get what? Self help groups for the poor. Globalisation And The Indian Economy: Production across Countries. Interlinking Production across Countries, Foreign Trade and Integration of Markets. What is Globalization? Factors that have enabled globalization, Introduction of MNC's , New Economic Policy, Liberalization of foreign trade and foreign investment policy. World Trade Organization. Impact of Globalization in India. The Struggle of a fair globalization. Consumer Rights: The Consumer in the Market Place, Consumer Movement, Information about goods and services, How and Where a Consumer exploit in the market? Where should consumer go to get justice? Learning to become well informed consumers? Taking the consumer movement forward.

Syllabus for Class XI (Arts Stream)

A. ENGLISH (syllabus as per Science stream)

B. ECONOMICS (as per Commerce stream)

C. HISTORY (syllabus as per Arts stream)

1) Rise of Nationalism in Europe:

- The Ideas of Giuseppe Mazzini
- How did nationalism develop through culture in Europe?
- Unification of Germany

2) Nationalist Movement in Indo-China:

- French domination in Vietnam
- Scholars Revolt and Hoa Hao Movement
- US entry in Vietnam & Ho Chi Minh Trail
- Vietnamese women during the war
- Civilising Mission of the colonisers

3) Nationalism in India:

- The idea of Satyagraha
- Non-cooperation Movement
- Civil Disobedience Movement
- Salt March and Round Table conference

D. GEOGRAPHY

1) Minerals and Energy Resources:

- Mode of occurrence of minerals
- Conservation of Minerals
- Energy Resources
- Conventional sources of Energy and Non conventional sources of Energy

2) Manufacturing Industries:

- Agro based Industries
- Industrial pollution and Environmental Degradation
- Control of Environmental Degradation

3) Life Lines of National Economy:

- Roadways, Railways, Pipelines and Airways
- Communication
- International Trade
- Tourism as a Trade

E. POLITICAL SCIENCE

1) Federalism :

- Union List ,State List ,Concurrent List and Residuary List
- Features of federalism
- Routes of federalism :- (i) Coming together (ii) Holding together federalism
- Advantages of local self-government
- Importance of Panchayati Raj System
- Define decentralisation and Advantages of Decentralisation

2) Political Parties:

- Meaning and Functions
- Need of Political parties
- National Parties, Regional or State Parties, Challenges to political parties & how can parties be Reformed?

3) Popular Struggles and Movements:

- Meaning
- Popular struggles in Bolivia and Nepal
- Pressure groups & Movements Influence of popular struggles