

Syllabus for ALOHA GAT 2018

Class: 10th

Subject : Science

Physics		
S. No.	Unit	Topics to be covered
01	Human eye and the colorful world	<ul style="list-style-type: none">• Human Eye: Power of accommodation; defects of vision and their correction.• Glass prism (refraction and dispersion)• Atmospheric refraction: twinkling of stars and color of sun at sunrise and sunset
02	Electricity	<ul style="list-style-type: none">• Concept of electric charge;• Electric current; electric potential and potential difference;• Ohm's law and experimental verification• Resistance and its dependence• Combination of resistance (in series and in parallel) (numerical Problems)• Heating effects of current- Electric Power and energy (numerical Problems)
Chemistry		
01	Carbon and its components	<ul style="list-style-type: none">• Bonding in Carbon, Covalent bond• Allotropes of Carbon• Versatile nature of Carbon; Saturated and Unsaturated hydrocarbons; chains; branches and rings , homologous series and its characteristics , Nomenclature of Carbon Compounds,• Chemical properties of carbon compounds viz; oxidation; addition and substitution reactions.• Important Carbon compounds like Ethane and Ethanoic acid• Properties of Ethanol and Ethanoic acid• Soaps and detergents
02	Metals and Non Metals	<ul style="list-style-type: none">• Physical and chemical properties of metals and non-metals• Chemical properties of metals like action of water, air , acids , salts• Reactivity series of metals• Cause of reactivity of metals and non-metals.• Properties of Ionic Compounds.• Occurrence of metals; their extraction, enrichment of ores.• Extraction of metals in accordance with activity series ; refining of metals• Corrosion of metals and its prevention
Biology		

01	Life Processes	<ul style="list-style-type: none"> • What are life processes? • Nutrition-Autotrophic Nutrition , Heterotrophic Nutrition. • How do animals obtain their nutrition? • Nutrition in Human beings. • Respiration • Transportation: Transportation in Plants • Excretion: Excretion in Human beings, Excretion in plants
02	Genetics and Heredity	<ul style="list-style-type: none"> • Accumulation of variation during reproduction • Heredity: Inherited traits; Rules for the maintenance of traits; Mendel's Contributions. How do these traits get expressed? • Sex Determination. • Speciation • Classification, tracing evolutionary relationships, fossils, and evolution by stages, Evolution should not be equated with progress.
03	Control and Co ordination	<ul style="list-style-type: none"> • Animals- Nervous system, What happens in Reflex Action • Human Brain • How are tissues protected? How does Nervous tissue cause action? • Coordination in Plants, immediate response to stimulus , movements due to growth • Hormones in Animals

Subject : Mathematics

S. No.	Unit	Topics to be covered
01	Polynomials	Zeroes of a Polynomial Relationship between zeroes and coefficients of polynomial with particular reference to quadratic polynomials. Statement and simple problems on division algorithm for polynomials with real coefficients.
02	Quadratic equations	Standard form of Quadratic equation $ax^2 + bx + c = 0$, ($a \neq 0$) Solution of quadratic equation (only real roots) by factorization and by using quadratic formulas Relationship between discriminant and nature of roots Problems related to day to day activities to be incorporated.
03	Trigonometry	<ul style="list-style-type: none"> • Trigonometric ratios of an acute angle of a right angled triangle Proof of their existence (well defined); motivate the ratios, whichever are defined at 0° and 9°. Values (with proofs) of the trigonometric ratios of 30°, 45° and 60°. Relationship between the ratios. • Trigonometric identities. Proofs and applications of the identity $\sin^2 A + \cos^2 A = 1$, Only simple identities to be given. Trigonometric ratios of complementary angles. • Heights and distances Simple and believable problems on heights and distances. Problems

		should not involve more than two right triangles. Angle of elevation/depression should be only 30° , 45° , 60° .
04	Construction	<ul style="list-style-type: none"> • 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.
05	Surface areas and volumes	<ul style="list-style-type: none"> • 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. (Problems with combination of not more than two different solids be taken.
06	Triangles	<p>Definitions, examples counter examples of similar triangles</p> <ul style="list-style-type: none"> • (Prove) : If a line is drawn parallel to one side of a triangle to intersect the other two sides in distinct points the other two sides are divided in the same ratio. • (Motivate) : If a line divides two sides of a triangle in the same ratio, the lines is parallel to third side. • (Motivate) : If in two triangles the corresponding angles are equal, their corresponding sides are proportional and the triangle are similar. • (Motivate) : If the corresponding sides of two triangles are proportional, their corresponding angles are equal and the two triangles are similar. • (Motivate) : If one angle of a triangle is equal to one angle of another triangle and the sides including these angles are proportional the two triangles are similar. • (Motivate) : If a perpendicular is drawn from the vertex of the right angle to the hypotenuse, the triangle on each side of the perpendicular are similar to the whole triangle and to each other. • (Prove) : The ratio of the areas of two similar triangles is equal to the ratios of the squares on their corresponding sides. • (Prove) : In a right triangle the square on the hypotenuse is equal to the sum of the squares on the other two sides. • (Prove) : In a triangle if the square on one side is equal to sum of the squares on the two sides, the angles opposite to the first side is a right triangle.

Subject : Social Studies

History		
S. No.	Unit	Topics to be covered
01	Nationalism In India	<ul style="list-style-type: none"> • Nationalism in India • First World War • Khilafat and Non-Cooperation • Different stands within the Movement. • Towards Civil Disobedience.
02	Work, Life and Leisure	<ul style="list-style-type: none"> • Work. Life and Leisure • Cities in the Contemporary World- Characteristics. • Social Change in City • Politics in the City • City in Colonial India. • Cities & Challenges of the Environment
03	Print culture and the modern world	<ul style="list-style-type: none"> • Print Culture and the Modern World. • The First Printed Books. • Print Comes to Europe. • Print Revolution & its Impact • Reading Mania.
Civics		
01	Democracy and Diversity	<ul style="list-style-type: none"> • Gender Religion and Caste • Democracy and its Merits • Origin of Social differences • Politics of Social divisions • Gender and Politics • Communalism and Caste • Socio-cultural pluralism in J&K • Women rights in J&K
02	Popular struggles and movements	<ul style="list-style-type: none"> • Popular struggles with examples • Mobilization and Organisation • Interest groups and Types • What are Political Parties and why do we need them? • Functions of Political Parties • Types of Political Parties • Challenges to Political Parties • How can Parties be reformed? • Growth of Political parties in J&K
Geography		
01	Agriculture	<ul style="list-style-type: none"> • Agriculture and its Importance. • Types of Agriculture. • Agricultural Scenario of India. • Major Crops grown in India with special reference to J&K. • Green Revolution in India.

02	Minerals Wealth	<ul style="list-style-type: none">• Mineral wealth of India.• Important Mineral resources of India.• Energy Resources of India.• Conservation of Mineral Resources.<ul style="list-style-type: none">• Mineral wealth of Jammu and Kashmir.
03	Manufacturing Industries	<ul style="list-style-type: none">• Growth of Industry in India.• Factors influencing the Location of Industries.• Classification of Industries.• Important Industries of India.• Textile Industry• Metallurgic Industry• Industrial regions of India.• Industries of Jammu and Kashmir.