Nature and scope of Human Geography, Approaches to the Human Geography, Determinism, Environmental Determinism, Possibilism, Neo-determinism, ecological and Behaviouralism.

Topic -13 People (World and India)

Trends and patterns of population growth: determinants and patterns of population distribution; theories, demographic transition; Human migration, Patterns of human development.

Topic-14 Human Activities: (World and India)

Primary: -Hunting, gathering, Herding (Nomadic & Commercial) Lumbering fishing, mining and agriculture; Agricultural practices; some major crops.
Secondary: - Industries: Classification, Theories of localization, major Industries, recent trends in industries, world comparisons.
Tertiary:-(Services)
Quaternary-Quinary activities
Planning in India: target area planning, idea of sustainable development

Topic-15 Transport, Communication and Trade(World and India)

Transport and communication Roads, railways, waterways and airways; oil and gas pipelines, national electric grids. Communication networking-radio, television, satellite and Internet.
International Trade-Basis and components, trade balance, major trading organizations, changing pattern of India's foreign trade, sea-routes, inland water-ways, sea ports and their hinter-land.

Topic-16 Human settlements (World and India)

Unstable and stable settlements, rural settlements: origin, types and patterns; Urban settlements: Origin and growth of towns; functional classification of towns. Problems of urbanization in the world; urbanization in India; Urban slums and squatters. Morphology of cities; distribution of Mega-cities, problems of human settlements in Developing countries.

Topic -17 Geographical perspective on selected issues and problems

Environmental pollution-Land, Water, Air, Noise, Global Warning, Poverty, Food Security; Sustainable Development.

Topic -13 General Cartography (Practicals)

Elements and classification of maps, scales, map-projections, finding directions, latitudes, longitudes and calculation of local & standard time, Identification & Analysis of relief forms: Topographical Maps and interpretation. Weather-instruments and interpretation of weather maps. Digital mapping, Remote sensing, Visual interpretation. Processing of Data, Thematic mapping, representing statistical data by various diagrams-Bar, Histogram, Pie etc.
Spatial Information technology: GIS, GPS, Computers-Software and Hardware components, Data format, Raster and Vector, editing and topology etc.
Spatial Analysis; Overlay, Buffer and Proximity analysis.

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SYLLABUS FOR PGT HISTORY

INDIAN HISTORY

Harappan Civilization –
a. Town Planning
b. Religion
c. Economic & Social Life
d. Script Writing

1) **Rise of Magadh in relation to 16 Mahajanpadas**
2) Rise of Heterodox sects with special reference to Buddhism, Jainism –
   a. Rise
   b. Teaching
   c. Comparison
   d. Effect on society, trade &commerce
3) The Mauryas –
   a. Causes for its rise
   b. Chandragupta Maurya Administration
   c. Contribution of Ashoka the Great (all aspects)
   d. Decline and fall of Mauryan Empire
4) The Guptas –
   a. Golden Period
   b. Samudra Gupta
   c. Chandragupta Vikramaditya etc.
   d. Administration, Religion, Trade & Commerce
5) Society & Economy – From Vedic till 7th century
6) Sultanate Era – The Defeat of Hindu kingdom and establishment of Delhi Sultanate
7) Mughal Period – 1526 to 1707(all aspects)
   a. Polity
   b. Administration
   c. Society
   d. Economy
8) Medieval Period – Society and Culture with special Reference to Bhakti Movement and Sufism
9) Medieval Architecture – Delhi Sultanate 'n Mughal Period
10) The Advent of Europeans and the establishment of 5 British rule
11) British rule and its impact on Indian economy
12) Revolt 1857 –
    a. Nature
    b. Causes
    c. Leadership
    d. Events
    e. Consequences
    f. Causes of defeat
    g. Impact
13) The socio – religious reform movements and the rise of nationalism
14) The Indian freedom movement - 1885 to 1947
15) Constitution –
    a. Framing
    b. Features
    c. Working of the Constitution
    d. Adoption of the Constitution

HISTORY OF THE WORLD

1) **Rise of Ancient Civilizations with special reference to**
   Mesopotamia –
   a. Urbanization
   b. Script
   c. Trade
   d. Calendar

2) **Roman and Greek civilization**
   a. Rise of the Empire
   b. Administration
   c. Society

3) **Rise of Islam** – a. Teachings
   b. Culture
   c. Crusades

4) **Nomadic people of Central Asia**

5) **The Dark age - Feudalism in Europe**
   a. Manor State
   b. Decline

6) **Renaissance 'n Reformation period in Europe**

7) **Capitalism and Mercantilism**
   a. Industrial Revolution
   b. Imperialism and colonialism

8) **China Since 1840 to 1949**

9) **Japan 1840 to 1949**

Syllabus for written examination for PGT(Mathematics)

Sets :
Sets and their representations. Empty set. Finite & Infinite sets. Equal sets. Subsets. Subsets of the set of real numbers. Power set. Universal set. Venn diagrams. Union and Intersection of sets. Difference of sets. Complement of a set.

Relations & Functions:
Ordered pairs, Cartesian product of sets. Number of elements in the cartesian product of two finite sets. Cartesian product of the reals with itself (upto R x R x R). Definition of relation, pictorial diagrams, domain. co-domain and range of a relation. Function as a special kind of relation from one set to another. Pictorial representation a function, domain, co-domain & range of a function. Real valued function of the real variable, domain and range of these functions, constant, identity, polynomial, rational, modulus, signum and greatest integer functions with their graphs. Sum, difference, product and quotients of functions. Sets and their Representations. Union, intersection and complements of sets, and their algebraic properties, Relations, equivalence relations, mappings, one-one, into and onto mappings, composition of mappings.

Principle of Mathematical Induction:
Processes of the proof by induction. The principle of mathematical induction.

Permutations & Combinations:
Fundamental principle of counting. Factorial *n*. Permutations and combinations, derivation of formulae and their connections, simple applications.

Complex Numbers:
Complex numbers, Algebraic properties of complex numbers, Argand plane and polar representation of complex numbers, Statement of Fundamental Theorem of Algebra, solution of quadratic equations in the complex number system. Modulus and Argument of a complex number, square root of a complex number. Cube roots of unity, triangle inequality.

Linear Inequalities:
Linear inequalities. Algebraic solutions of linear inequalities in one variable and their representation on the number line. Graphical solution of linear inequalities in two variables. Solution of system of linear inequalities in two variables- graphically. Absolute value, Inequality of means, Cauchy-Schwarz Inequality, Tchebychef's Inequality.

Binomial Theorem:
Statement and proof of the binomial theorem for positive integral indices. Pascal's triangle, general and middle term in binomial expansion, simple applications. Binomial Theorem for any index. Properties of Binomial Co-efficients. Simple applications for approximations.

Sequence and Series:
Sequence and Series. Arithmetic, Geometric and Harmonic progressions (G.P.), General terms and sum to *n* terms of A.P., G.P. and H.P. Arithmetic Mean (A.M.), Geometric Mean (G.M.), and Harmonic Mean (H.M.), Relation between A.M., G.M. and H.M. Insertion of Arithmetic, Geometric and Harmonic means between two given numbers. Special series, Sum to *n* terms of the special series. . Arithmetico-Geometric Series, Exponential and Logarithmic series.

Elementary Number Theory:
Peano's Axioms, Principle of Induction; First Principle, Second Principle, Third Principle, Basis Representation Theorem, Greatest Integer Function Test of Divisibility, Euclid's algorithm, The Unique Factorisation Theorem, Congruence, Sum of divisors of a number . Euler's totient function, Theorems of Fermat and Wilson.

Quadratic Equations:
Quadratic equations in real and complex number system and their solutions. Relation between roots and co-efficients, nature of roots, formation of quadratic equations with given roots; Symmetric functions of roots, equations reducible to quadratic equations – application to practical problems.

Polynomial functions, Remainder & Factor Theorems and their converse, Relation between roots and coefficients, Symmetric functions of the roots of an equation. Common roots.

Matrices and Determinants:
Determinants and matrices of order two and three, properties of determinants, Evaluation of determinants. Area of triangles using determinants, Addition and multiplication of matrices, adjoint and inverse of matrix. Test of consistency and solution of simultaneous linear equations using determinants and matrices.

Two dimensional Geometry:
Cartesian system of rectangular co-ordinates in a plane, distance formula, section formula, area of a triangle, condition for the collinearity of three points, centroid and in-centre of a triangle, locus and its equation, translation of axes, slope of a line, parallel and perpendicular lines, intercepts of a line on the coordinate axes.

Various forms of equations of a line, intersection of lines, angles between two lines, conditions for concurrence of three lines, distance of a point from a line, Equations of internal and external bisectors of angles between two lines, coordinates of centroid, orthocentre and circumcentre of a triangle, equation of family of lines passing through the point of intersection