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Syllabus of Geography PET – 2016

Sr. No.	Subject / Branch	Units / Focus Points
Section A: Research Applications, Methodology, Tools and Techniques		
Unit I	Cartographic Techniques and SOI	<ul style="list-style-type: none"> • Cartographic Techniques: Map Scale and their types, Direction, Scale conversion, Legends, Enlargement and Reduction of Maps • SOI: Indexing, Conventional Signs and Symbols, Marginal Information, Grid References, Contours, Slope, Drainage Pattern.
Unit II	Statistical Geography	<ul style="list-style-type: none"> • Types of Geographical Data • Analytical methods (Mean, Median, Variance, Standard Deviation, Skewness and Kurtosis) • Concept of Probability (Methods of Determination) • Time Series Analysis, Correlation and Regression • Testing of Hypothesis (Parametric and Non-Parametric Tests)
Unit III	Surveying and Map Projections	<ul style="list-style-type: none"> • Geodetic Surveying (Triangulation, Benchmarks, Spot Heights, Reduced Levels, Interpolation, Contouring) • Survey Instruments (Plain Table, Prismatic Compass, Abney Level) • Fundamental Concepts of Map Projection • Polyconic Projection • International Map Projection (Modified Polyconic) • Universal Transverse Mercator (UTM) Projection • Mollweide Projection
Unit IV	Remote Sensing And Geographical Information System (GIS)	<ul style="list-style-type: none"> • Basic Concepts: Spectrum, Spectral Quantities, EMR, Laws of Radiation, Concept of Blackbody radiation, Spectral Signatures, Scattering, Absorption, Refraction, Path Radiance Reflection, Transmission, Absorption, Scattering, Surfaces, Atmospheric Windows • Basics of Aerial Photography, Basics of Satellite Remote Sensing • Elements of GIS and GIS Softwares • Data Models (Spatial and Non-Spatial) • Digitization and Editing • Data Analysis (Attribute and Spatial Databases)
Unit V	Geographical Positioning System (GPS) And Computer Applications	<ul style="list-style-type: none"> • Elements of GPS and GPS Coordinates • Fundamental Concepts (Space Segment, Control segment and User Segment) • Components and Types of Receiver • GPS Signals • Basics of Computer (Input and Output Devices) • Map and figures Making Tools and Functions • Use of Excel Software • Excel software: Data Analysis and Graphical Representation.
Section B: Core Subjects		
Unit I	Geomorphology	<ul style="list-style-type: none"> • Geomorphic scale • Tectonism and concerned theories • Weathering and Mass movement • Work of River, Waves and Tides (Coastal processes), Glaciers and Wind. • Slope Morphology
	Climatology	<ul style="list-style-type: none"> • Earth's Atmosphere (Composition and Structure) • Insolation and Heat Balance • Temperature, Humidity, Air Masses and Fronts • Air Pressure and Wind • Circulation of Atmosphere (with basic theories) • Cyclone
	Oceanography	<ul style="list-style-type: none"> • Relief of the Ocean Bottom (Floor): Basic Concepts • Properties of Sea Water • Waves, Tides and Tidal Currents and Ocean Currents
Unit II	Population Geography	<ul style="list-style-type: none"> • Basic Concepts: Population Growth, Distribution, Size, Density, Fertility, Mortality, Birth and Death rate, Crude Birth rate, Infant Mortality, Malnutrition, Sex ratio, Age-Sex pyramid, Literacy, Aging Population, Dependency ratio, Migration. • Theories of Population Growth (Thomas Malthus, Ricardo and Demographic Transition Mode)
	Economic Geography	<ul style="list-style-type: none"> • Locational Activities (Von Thunen and Weber's models) • Spatial and Temporal Aspects of Economic Development (Rostow's and Myrdal's Models) • International Trade and Structure (Ricardo's Classical Theory)

	Agricultural Geography	<ul style="list-style-type: none"> • Agricultural Types and Determinants of Agricultural Patterns • Irrigation, Droughts and Famines, Agro-Climatic Zones • Crop Combination Methods (Weaver's Method & Thomas' method) • Agricultural Efficiency Methods (Kendall's method & Bhatia's method)
Unit III	Geographical Thoughts	<ul style="list-style-type: none"> • Basic Concepts: Determinism, Possibilism, Neo-determinism, Doctrine of Facts, Logical Positivism, Behaviouralism and Humanistic Geography • Contribution in Ancient, Medieval and Modern Period
	Soil Geography	<ul style="list-style-type: none"> • Concepts: Fertility, Productivity, Suitability, Floral and Faunal Organic Matters, Humus, Soil Biomass, Soil Profile, Land Capability, Salinization, Acidification, Soil Fertility Decline, Soil Contamination, Deforestation, Overgrazing • Soil Formation and their Factors • Properties of Soils (Physical and Chemical)
	Environmental Geography	<ul style="list-style-type: none"> • Ecosystem, Food Chain and Food Web, Energy Transfer, Pyramid of Energy, Biogeochemical Cycles (Nitrogen, Carbon dioxide and Oxygen) • Environmental Pollution • Environmental Legislations (Laws and Acts)
Unit IV	Settlement Geography	<ul style="list-style-type: none"> • Patterns of Settlement (Neolithic to Modern period) • Dispersion and Nucleation of Settlement • Nodality, Centrality, Range, Threshold & Hierarchy and Rank-size distribution • Settlement Theories: Christaller and Losch's Models • Theories of Rural Land Use (Von Thunen and Ricardo)
	Urban Geography	<ul style="list-style-type: none"> • Concepts: CBD, Rural-Urban Fringe, Suburbanization, Conurbation, Megalopolis, Satellite Towns, Rank size rule, Hierarchy of urban settlements. • Models of Urban Morphology/ Structure: Park and Burgess Model, Homer Hoyet Model, Harris and Ullman Model. • Functional classification of towns and cities by C.D. Harris and H. J. Nelson
	Industrial Geography	<ul style="list-style-type: none"> • Industrial Location (Centralisation and Decentralisation) • Agglomeration of Industries and Industrial Linkages • Models: Weber's Model, Losch's Model, Greenhut's and Israd's Model • IT Industries
	Trade and Transport Geography	<ul style="list-style-type: none"> • Modes of Transportation, Measurement of Accessibility • Concept of Trade, Types of Trade • Concept of Balance of Trade • Trade Theories: Theory of Comparative Advantage, Neo-Classical Theory, Modern Theory
Unit V	Social and Cultural Geography	<ul style="list-style-type: none"> • Bases and Concepts: Positivism, Humanism, Idealism, Phenomenalism, Existentialism, Structuralism and Radicalism • Social Well Being, HD and HRD Index • Cultural Indicators • Social Justice, Equality and Welfare
	Natural and Manmade Hazards / Disasters	<ul style="list-style-type: none"> • Concepts: Hazard, Disaster, Risk, Vulnerability • Natural Hazards: Climatic, Geological & Geomorphic. • Man-made Hazards: Physical, Chemical & Biological
	Political Geography	<ul style="list-style-type: none"> • Whittlesey's Landscape Approach, Unified Field Theory • Global Geo-Strategic Views of Mahan, Mackinder, Spykman & Cohen • SAARC Regions