

**Dr. Babasaheb Ambedkar Marathwada University, Chhatrapati Sambhajnagar (MS)**

**Syllabus of Geography PET-2024**

Sr. No.	Subject/Branch	Units/Focus Points
<b>Section A: Research Applications, Methodology, Tools and Techniques</b>		
<b>Unit I</b>	Cartographic Techniques and SOI	<ul style="list-style-type: none"> <li>• Cartographic Techniques: Map scale and their types, conversion of scale and map elements. Enlargement and Reduction of Map.</li> <li>• SOI: Indexing, conventional signs and symbols, marginal information, Grid References, Contours, slope, Drainage Patterns.</li> </ul>
<b>Unit II</b>	Statistical Geography	<ul style="list-style-type: none"> <li>• Type of Geographical Data</li> <li>• Analytical methods (Mean, Median, Variance, Mode, Standard Deviation, Skewness and Kurtosis)</li> <li>• concept of probability (Methods of Determination)</li> <li>• Time Series Analysis, Correlation and Regression</li> <li>• Testing of Hypothesis (Parametric and Non-Parametric Tests)</li> </ul>
<b>Unit III</b>	Surveying and Map Projections	<ul style="list-style-type: none"> <li>• Geodetic Surveying (Tringulation, Benchmarks, Spot Heights, Reduced Levels, Interpolation, Contouring)</li> <li>• Survey Instruments (Plane Table, Prismatic Compass, Abney Level)</li> <li>• Fundamental Concepts of Map Projection</li> <li>• Polyconic Projection</li> <li>• International Map Projection (Modified Polyconic)</li> <li>• Universal Transvers Mercator's (UTM) Projection</li> <li>• Mollweide Projection</li> </ul>
<b>Unit IV</b>	Remote Sensing And Geographic Information System (GIS)	<ul style="list-style-type: none"> <li>• Basic Concepts : spectrum, spectral quantities, EMR, Laws of Radiation, Concept of Blackbody, radiation, Transmission, Absorption, Scattering, Surface, Atmosphere Windows</li> <li>• Basics of Ariel Photography, Basics of Satellite Remote Sensing</li> <li>• Elements of GIS and GIS Software</li> <li>• Data Models (Spatial and Non-Spatial)</li> <li>• Digitization and Editing</li> <li>• Data Analysis (Attribute and Spatial Database)</li> </ul>
<b>Unit V</b>	Geographical Positioning System (GPS) And Computer Applications	<ul style="list-style-type: none"> <li>• Elements of GPS and GPS Coordinates</li> <li>• Fundamental Concepts (Space Segment, Control Segment and User Segments)</li> <li>• Components and Types of Receiver</li> <li>• GPS Signals</li> <li>• Basics of Computer (Input and Output Devices)</li> <li>• Map and figures Making Tools and Functions</li> <li>• Use of Excel Software</li> <li>• Excel Software: Data Analysis and Graphical Representation.</li> </ul>
<b>Section B: Core Subjects</b>		
<b>Unit I</b>	Geomorphology	<ul style="list-style-type: none"> <li>• Geomorphic Scale</li> <li>• Tectonism and Concerned theories</li> <li>• Weathering and Mass Movement</li> <li>• Work of River, Glacier, Wind Waves and Tides (Coastal Process).</li> <li>• Slope Morphology</li> </ul>
	Climatology	<ul style="list-style-type: none"> <li>• The Earth's Atmosphere (Composition and Structure)</li> <li>• Insolation and Heat Balance</li> <li>• Temperature, Air Pressure and Wind</li> <li>• Humidity, Air Masses and Fronts</li> <li>• Circulation of Atmosphere (with basic theories)</li> <li>• Cyclone</li> </ul>
	Oceanography	<ul style="list-style-type: none"> <li>• Relief of the Ocean Bottom (Floor): Basic Concepts</li> <li>• Properties of Sea water</li> <li>• Waves, Tides and Tidal Currents and Ocean Currents</li> </ul>
<b>Unit II</b>	Population Geography	<ul style="list-style-type: none"> <li>• Basic Concepts: Population Growth, Distribution, Size, Density, Fertility, Crude Birth rate, Birth Rate, Death rate, Mortality, Infant Mortality, Malnutrition, Sex ratio, Age-Sex Pyramid, Literacy, Aging Population, Dependency ratio, Migration</li> </ul>

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		<ul style="list-style-type: none"> <li>Theories of Population Growth (Thomas Malthus)</li> </ul>
	Economic Geography	<ul style="list-style-type: none"> <li>Location Activities (Von Thunen)</li> <li>Spatial and Temporal Aspects of Economic Development (Rostow's and Myrdal's Models)</li> <li>International Trade and Structure (Ricardo's Classical Theory)</li> <li>Industrialization, Privatization, and Globalization.</li> <li>Revolutions: Green, White and Blue</li> </ul>
	Agricultural Geography	<ul style="list-style-type: none"> <li>Determinants of Agricultural Patterns and Agricultural types.</li> <li>Agro-Climatic zones</li> <li>Irrigation, Droughts and Famines</li> <li>Crop combination methods (Weaver's Method and Bhatia's Method)</li> </ul>
Unit III	Geographical Thoughts	<ul style="list-style-type: none"> <li>Basic Concepts: Determinism, Possibilism, Neo-Determinism, Doctrine of facts, logical Positivism and Behaviouralism</li> <li>Humanistics Geography</li> <li>Contribution of Geographers in Ancient, Medieval and Modern Period.</li> </ul>
	Soil Geography	<ul style="list-style-type: none"> <li>Soil formation, and their factors</li> <li>Concepts: Fertility, Productivity, Suitability, Floral and Faunal organic Matter, Humus, soil biomass, soil profile, land capability, salinization, Acidification, soil fertility, decline, decline. Soil deforestation, overgrazing</li> <li>Properties of Soils (physical and chemical)</li> </ul>
	Environmental Geography	<ul style="list-style-type: none"> <li>Ecosystem, Food Chain and Food Web, Energy Transfer, Pyramid of Energy, Biogeochemical Cycles (Nitrogen, Carbon dioxide and Oxygen)</li> <li>Environmental Pollution</li> <li>Environmental Legislations (Laws and Acts)</li> </ul>
Unit IV	Settlement Geography	<ul style="list-style-type: none"> <li>Patterns of Settlement (Neolithic to Contemporary Period)</li> <li>Dispersion and Nucleation of Settlement</li> <li>Nodality, Centrality, Range, Threshold, Hierarchy and Rank size distribution</li> <li>Settlement Theories: Christaller's central place theory</li> </ul>
	Urban Geography	<ul style="list-style-type: none"> <li>Concepts: CBD, Rural Urban Fringe, Suburbanization, Urbanization, Conurbation and Megalopolis and satellite towns</li> <li>Urban Morphology: Park and Burgess Model, Homer Hoyer Model, Harris and Ullman Model.</li> <li>Functional classification</li> </ul>
	Industrial Geography	<ul style="list-style-type: none"> <li>Locational Factors</li> <li>Centralization and Decentralization of Industries</li> <li>Industries and Industrial linkages</li> <li>Industrial Theory : Growth fall model, Greenhunt's and Israd's Model</li> <li>IT Industries</li> </ul>
	Trade and Transport Geography	<ul style="list-style-type: none"> <li>concept of trade, types of trade and Balance of Trade</li> <li>Modes of Transportation, Measurement of Accessibility</li> <li>Trade Theories: Theory of Comparative Advantage, Neo-Classical Theory, Modern Theory</li> </ul>
Unit V	Social and Cultural Geography	<ul style="list-style-type: none"> <li>Bases and concepts: Positivism, Humanism, Idealism, Phenomenalism, Existentialism, structuralism and Radicalism</li> <li>Cultural Indicators</li> <li>social wellbeing, HD and HRD Index</li> <li>Social Justice, Equality and Welfare</li> </ul>
	Natural and Manmade Hazards/Disasters	<ul style="list-style-type: none"> <li>Concepts: Hazard, disaster, Risk, Vulnerability</li> <li>Natural Hazards: Geological, Geomorphic and Climatic,</li> <li>Manmade Hazards: Physical, Chemical and Biological</li> </ul>
	Political Geography	<ul style="list-style-type: none"> <li>Boundaries, frontiers, nation, state and nation and state</li> <li>Whittlesay's Landscape Approach, Unified Field Theory</li> <li>Global Geo-Strategic Views of Mackinder, Spyk man and Cohen</li> <li>SAARC Organization</li> </ul>

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