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UGC NET Paper 2

Geography (080)
Complete revision notes — all 10 units

10 units | Tables & formulas | Key revision points

01 Geomorphology
02 Climatology
03 Oceanography
04 Geography of Environment
05 Population and Settlement Geography
06 Economic Geography and Regional Development
07 Cultural, Social and Political Geography
08 Geographic Thought
09 Geographical Techniques
10 Geography of India

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How to use these notes

- Read one unit at a time, then test yourself with its key revision points.
- Make your own short notes on topics you find difficult.
- Units follow the main areas of the official syllabus — the exact unit list can change between sessions.
- Always check the latest syllabus and notices on the official UGC NET portal: **ugcnet.nta.ac.in**.

UNIT 01

Geomorphology

Earth's interior, plate tectonics, landforms and cycles of erosion.

- Interior: crust, mantle, core; discontinuities — Mohorovičić (crust–mantle), Gutenberg (mantle–core).
- **Continental drift** — Alfred Wegener (1912); **plate tectonics** (1960s); sea-floor spreading — Harry Hess.
- Isostasy: Airy and Pratt models.
- Cycle of erosion — W. M. Davis (youth, maturity, old age); Walther Penck — slope development.
- Landforms by agents: fluvial, glacial, aeolian, coastal, karst.

★ Key revision points

- Continental drift = Wegener.
- Sea-floor spreading = Hess.
- Geographical cycle = W. M. Davis.
- Moho separates crust and mantle.

UNIT 02

Climatology

Atmosphere, heat balance, pressure and winds, monsoon and climate classification.

- Atmospheric layers: troposphere (weather) → stratosphere (ozone) → mesosphere → thermosphere.
- Lapse rate ≈ 6.5 °C per km; Coriolis force deflects winds right in the Northern Hemisphere.
- Planetary winds: trade winds, westerlies, polar easterlies; jet streams.
- **Köppen** classification (A–E); Thornthwaite (precipitation effectiveness).
- Indian monsoon: differential heating, ITCZ shift, jet streams; El Niño weakens it.

★ Key revision points

- Normal lapse rate ≈ 6.5 °C/km.
- Ozone layer is in the stratosphere.
- Köppen: A–E climate groups.
- El Niño is linked to weak Indian monsoons.

UNIT 03

Oceanography

Ocean floor relief, temperature and salinity, currents, tides and marine resources.

- Relief: continental shelf, slope, rise, abyssal plain, trenches (Mariana — deepest).
- Average ocean salinity ≈ 35 parts per thousand.
- Currents: warm (Gulf Stream, Kuroshio) and cold (Labrador, Humboldt/Peru).
- Tides: spring tides at new and full moon; neap tides at quarter moons.
- Coral reefs need warm, clear, shallow water.

★ Key revision points

- Average salinity ≈ 35‰.
- Deepest point: Mariana Trench.
- Spring tides at new and full moon.
- Gulf Stream is warm; Labrador is cold.

UNIT 04

Geography of Environment

Ecosystems, biodiversity, environmental problems and conservation.

- Ecosystem components; energy flow; 10% law (Lindeman).
- Biodiversity hotspots (Myers) — India includes the Himalaya, Western Ghats–Sri Lanka, Indo-Burma and Sundaland (Nicobar).
- Problems: deforestation, desertification, climate change, land degradation.
- Conservation: protected areas, biosphere reserves (UNESCO MAB).

★ Key revision points

- 10% energy transfer law = Lindeman.
- Hotspot concept = Norman Myers.
- Biosphere reserves: UNESCO MAB.
- Western Ghats is a biodiversity hotspot.

UNIT 05

Population and Settlement Geography

Population distribution and theories, migration, and urban and rural settlements.

Theory / model	Author
Population growth	Malthus
Demographic transition	Notestein
Laws of migration	Ravenstein
Central place theory	Walter Christaller (1933)
Primate city	Mark Jefferson
Rank-size rule	Zipf
Concentric zone / sector / multiple nuclei	Burgess / Hoyt / Harris and Ullman

★ Key revision points

- Central place theory = Christaller.
- Laws of migration = Ravenstein.
- Sector model = Hoyt.
- Primate city = Mark Jefferson.

UNIT 06

Economic Geography and Regional Development

Location theories, agriculture, industry, transport and regional planning.

Theory	Author
Agricultural location	Von Thünen (1826)
Industrial location (least cost)	Alfred Weber (1909)
Growth pole	François Perroux
Cumulative causation	Gunnar Myrdal
Core–periphery	John Friedmann

★ Key revision points

- Von Thünen = agricultural location.
- Least-cost industrial location = Weber.
- Growth pole = Perroux.
- Cumulative causation = Myrdal.

UNIT 07

Cultural, Social and Political Geography

Cultural regions, race and religion, and geopolitical theories.

- **Heartland theory** — Halford Mackinder (1904); **Rimland theory** — Nicholas Spykman.
- *Lebensraum* — Friedrich Ratzel; organic theory of the state.
- Cultural hearths, cultural diffusion, cultural landscape (Carl Sauer).

★ Key revision points

- Heartland = Mackinder (1904).
- Rimland = Spykman.
- Lebensraum = Ratzel.
- Cultural landscape = Carl Sauer.

UNIT 08

Geographic Thought

Contributions of thinkers and paradigms from classical to modern geography.

Thinker / paradigm	Contribution
Eratosthenes	Coined 'geography'; measured Earth's circumference
Ptolemy	*Geographia*
Humboldt and Ritter	Founders of modern geography
Determinism	Ratzel, Ellen Semple, Huntington
Possibilism	Vidal de la Blache
Neo-determinism ('stop and go')	Griffith Taylor
Quantitative revolution	1950s–60s; spatial science
Humanistic / radical	Yi-Fu Tuan; David Harvey

★ Key revision points

- 'Geography' coined by Eratosthenes.
- Possibilism = Vidal de la Blache.
- Stop-and-go determinism = Griffith Taylor.
- Radical geography = David Harvey.

UNIT 09

Geographical Techniques

Maps and projections, remote sensing, GIS, GPS and statistical methods.

- Scale: representative fraction, statement, graphical.
- Projections: Mercator (conformal; navigation), equal-area, zenithal.
- **Remote sensing**: electromagnetic spectrum; resolution — spatial, spectral, radiometric, temporal; India's first remote sensing satellite IRS-1A (1988).
- **GIS**: raster vs vector data. GPS and India's NavIC.
- Statistics: mean, SD, correlation, nearest neighbour analysis.

★ Key revision points

- Mercator projection is conformal.
- IRS-1A launched 1988.
- Raster = grid cells; vector = points, lines, polygons.
- NavIC = Indian regional navigation system.

UNIT 10

Geography of India

Physiography, drainage, climate, soils, resources and regional patterns of India.

- Physiographic divisions: Himalaya, Northern Plains, Peninsular Plateau, Indian Desert, coastal plains, islands.
- Drainage: Himalayan rivers (perennial) vs Peninsular rivers (mostly seasonal); Narmada and Tapi flow west through rift valleys.
- Soils (ICAR): alluvial (largest area), black (regur — cotton), red, laterite, arid, mountain.
- Highest peak in India: Kangchenjunga; southernmost point: Indira Point.

★ Key revision points

- Alluvial soil covers the largest area.
- Black soil suits cotton.
- Narmada and Tapi flow west.
- Highest peak in India: Kangchenjunga.

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