
Conducted by National Testing Agency (NTA)

 UPKAR'S

UGC

NET/JRF/SET

GEOGRAPHY

(PAPER-II)

(Including Practice Test Papers)

By

Ritesh Kumar

&

Sujit Kumar

Revised Edition

Upkar Prakashan, Agra

Introducing Direct Shopping

Now you can purchase from our vast range of books and magazines at your convenience :

- Pay by Credit Card/Debit Card or Net Banking facility on our website www.upkar.in OR
- Send Money Order/Demand Draft of the print price of the book favouring '**Upkar Prakashan**' payable at **Agra**. In case you do not know the price of the book, please send Money Order/Demand Draft of ₹ 100/- and we will send the books by VPP (Cash on delivery).

(Postage charges FREE for purchases above ₹ 100/-. For orders below ₹ 100/-, ₹ 20/- will be charged extra as postage)

© Publishers

Publishers

UPKAR PRAKASHAN

Head Office : 1 State Bank Colony, Khandari, Agra-Mathura Bye-pass, AGRA-282 005

Regd. Office : 2/11A, Swadeshi Bima Nagar, AGRA-282 002

Phone : 2530966, 2531101

E-mail : care@upkar.in, **Website :** www.upkar.in

Branch Offices

4845, Ansari Road, Daryaganj,

New Delhi-110 002

Phone : 011-23251844, 43259035

16-11-23/37, Moosarambagh, Teegan Guda

Opp. RTA Office Main Road, Beside-

Union Bank, **Hyderabad**-500 036 (T.S.)

Phone : 040-24557283

Paras Bhawan (First Floor),

Khazanchi Road,

Patna-800 004

Phone : 0612-2303340

8-310/1, A. K. House,

Heeranagar, **Haldwani**,

Distt.-Nainital-263139

(Uttarakhand)

Mob. : 7060421008

- *The publishers have taken all possible precautions in publishing this book, yet if any mistake has crept in, the publishers shall not be responsible for the same.*
- *This book or any part thereof may not be reproduced in any form by Photographic, Mechanical, or any other method, for any use, without written permission from the Publishers.*
- *Only the courts at Agra shall have the jurisdiction for any legal dispute.*

ISBN : 978-93-5013-203-6

Code No. 1735

Printed at : UPKAR PRAKASHAN (Printing Unit) Bye-pass, AGRA

Contents

1. Geomorphology 3–48

Continental Drift	3
Plate Tectonics	5
Endogenetic (Endogenic) Forces	7
Exogenetic (Exogenic) Forces	11
Denudation	11
Weathering	12
Geomorphic Cycle	13
Davis	13
Penck	16
Theories and Process of Slope Development	18
Movements of the Earth	20
Seismicity	21
Volcanoes	22
Landform Occurrence	25
Geomorphic Hazards	39
● Objective Questions	42

2. Climatology 49–104

Composition of the Atmosphere	49
Structure of the Atmosphere	51
Insolation	54
Heat Budget of Earth	58
Distribution of Temperature	60
Atmospheric Pressure	64
General Circulation of Winds	65
Atmospheric Circulation	75
Air Masses	76
Koppen's and Thornthwaite's Schemes of Climatic Classification	77
El Nino Southern Oscillation (ENSO)	81
Southern Oscillation	82
Meteorological Hazards	82
Tornadoes	88
Thunderstorms	89
Hailstorms	90
Cloudburst	90
Heat and Cold Waves	90

Drought	92
Glacial Lakes Outburst Floods	93
Climate Change	93
Causes of Climate Change	94
Effects of Climate Change	95
Human Impact on Climate Change	96
● Objective Questions	96

3. Oceanography 105–135

Origin of Ocean Basins	106
Relief of Oceans	106
Temperature and Salinity of the Oceans	113
Salinity	115
Oceanic Waves and Currents	119
Tides	120
Sea Level Changes	123
Natural Hazards	126
Tsunami	127
Cyclones	128
● Objective Questions	129

4. Geography of Environment 136–181

Component: Ecosystem	136
Human Ecology	140
Energy Flow	141
Trophic Level	142
Food Chain	142
Food Web	142
Ecological Pyramid	143
Impact of Human Interactions on Ecosystem	143
Environmental Ethics	145
Deep Ecology	146
Environmental Hazards	147
Global Warming	147
Urban Heat Island	148
Atmospheric Pollution	149
Land Degradation	155
National Programmes and Policies	162

Environment Policy	168	Factors Affecting Spatial	
Sustainable Development	169	Organisation of Economic Activities	226
International Programmes		Natural Resources	227
and Policies	170	Distribution of Natural Resources	228
Kyoto Protocol	173	Natural Resource Management	233
Paris Agreement	174	Energy Crisis	234
● Objective Questions	175	Agricultural Geography	235
5. Population and Settlement		Land Capability Classification	
Geography 182–224		and Use Planning	236
Sources of Population Data	184	Cropping Pattern	237
World Population	184	Methods of Delineating Crop Combination	
Densely Populated Regions	187	Regions	238
Demographic Transition	190	Crop Diversification	239
Theories of Population Growth	191	Von Thunen's Model	240
Fertility	193	Agricultural Productivity	241
Mortality	194	Regional Variations in	
Migration	195	Agricultural Productivity	242
Population Composition and		Agricultural System of the World	243
Characteristics	199	Industrial Geography	245
Population Policies	200	Classification of Industries	246
Settlement Geography	200	Factors Affecting Industrial Location	246
Types and Patterns of Rural		Theories of Industrial Location	247
Settlement	201	World Industrial Regions	251
Contemporary Problems of		Globalisation in Less	
Rural Settlements	201	Developed Countries	252
Theories of Origin of Towns	202	Tourism Industry	254
Process of Urbanisation	206	World's Top Tourism Destinations	256
Trends of Urbanisation	207	Knowledge Production Industries	257
Functions of Urban Settlements	207	Geography of Transport and Trade	257
Urban Fringe	208	Theories and Models of	
Primate City	209	Spatial Interaction	258
Rank-Size Rule	209	Accessibility and Connectivity	259
Christaller's Central Place Theory	210	Spatial Flow Models	259
Internal Structure of City	211	The Gravity Model	259
Models of Urban Land Use	212	World Trade Organisation	260
Concept of Megacities, Global		Globalisation	262
Cities and Edge Cities	213	Liberalisation	262
Urban Social Area Analysis	214	Pattern of World Trade	263
Changing Urban Forms	215	Problems and Prospects of Trade	263
Rural Urban Fringe	216	Regional Development	263
● Objective Questions	217	Typology of Regions	265
6. Geography of Economic Activities and		Formal v/s Functional Region	266
Regional Development 225–285		World Regional Disparities	267
Aims and Scope of Economic		Theories of Regional Development	269
Geography	225	Myrdal's View	270

Albert O Hirschman View	270	8. Geographic Thought 326–352	
John Friedman's View	270	Contribution of Greeks	326
Dependency Theory of		Contribution of Romans	327
Underdevelopment	270	Contribution of Arabs	327
Global Economic Blocs	270	Contributions of Chinese	328
Social Movement in India	272	Contributions of Indians	329
● Objective Questions	276	Darwinian Theory of Evolution	332
7. Cultural, Social and Political		Impact of Darwin on	
Geography 286–325		Geographical Thought	332
Cultural and Social Geography	286	Contemporary Trends in	
Concept of Culture-Areas and		Indian Geography	333
Cultural Regions	286	Cartographic Contributions	333
Cultural Complexes	287	Thematic Contributions	333
Cultural Heritage	290	Methodological Contributions	333
Cultural Ecology	290	Major Geographic Traditions	333
Cultural Convergences	291	Earth Science Tradition	335
Social Structure and Social Process	292	Man and Environment Relationship	335
Social Well-Being and Quality of Life	293	Spatial Organisation	336
Social Exclusion	293	Dualism in Geographic Studies	336
Spatial Distribution of Social		Paradigm Shift	338
Groups in India	294	Perspectives in Geography	339
Environment and Human Health	296	● Objective Questions	346
Diseases Ecology	297	9. Geographical Techniques 353–398	
Nutrition Status	298	Sources of Geographic	
Spatial and Seasonal Distributional		Information and Data	353
Patterns of Nutrition	300	Types of Maps	353
Healthcare Planning and		Techniques of Map Making	354
Policies in India	302	Data Representation on Maps	356
Medical Tourism	304	Diagrams	356
Political Geography	305	Components of GIS	359
Boundaries and Frontiers	305	Functions of GIS	360
Heartland Theory	306	Digital Elevation Model (DEM)	360
Rimland Theory	307	Georeferencing of Raster Data	362
Trends and Developments in		Applications of GIS	364
Political Geography	308	Baic of Remote Sensing	367
Geography of Federalism	308	Types of Aerial Photography	369
Electoral Reforms in India	309	Digital Image Processing	369
Determinants of Electoral Behaviour	310	Developments in Remote Sensing	369
Geopolitics of Climate Change	311	Big Data	370
Geopolitics of World Resources	312	Big Data and Management of	
Geopolitics in Contemporary Scenario	313	Resources in India	370
Geopolitics of Indian Ocean	313	Global Positioning System	370
Regional Organisations of		Components of GPS	371
Cooperation	314	Applications of GPS	371
Neopolitics of World Natural		Measures of Central Tendency	372
Resources	317		
● Objective Questions	317		

Dispersion	373	Growth of Population	419
Sampling	375	Composition of Population	420
Hypothesis Testing	376	Determinants of the Population	423
Time Series Analysis	380	National Population Policy	425
Correlation	381	Main Indian Crops	425
Regression	381	Major Cropping Regions	428
Measurement of Indices	382	Factors Affecting Indian Agriculture	429
Composite Index	382	Agro-Climatic Regions of India	429
Principal Component Analysis	382	Green Revolution	432
Cluster Analysis	383	Food Security and Right to Food	433
Morphometric Analysis	383	Right to Food	434
Stream Order	384	Industries and Trade	435
Bifurcation Ratio	384	Industrial Development	
Drainage Frequency	386	Post Independence	435
Dissection Index/Relief Ratio	386	Industrial Regions in India	437
Profile Analysis	386	Industrial Policy of India	438
Slope Analysis	386	Development and Patterns	
Hypsometric Analysis	387	of Transport	440
Clinographic Curve	388	Internal and External Trade	446
Altimetric Analysis	389	Regional Development and Planning	446
● Objective Questions	389	Globalisation and its Impact on	
10. Geography of India	399–482	Indian Economy	450
Major Physiographic Regions	399	Natural Hazards and Disasters in India	451
Drainage System	400	Classification of Disasters	451
Climate	404	Earthquake	452
The Indian Monsoon	405	Cyclone	454
Jet Streams and Indian Monsoon	407	Flood	458
Natural Resources of India	409	Drought	461
Soils	409	Landslide	463
Vegetation	410	Tsunami	464
Water Resources	411	Human Made Disasters	466
Mineral Resources	413	Himalayan Highland Hazards	
Marine Resources	415	and Disasters	470
Population Characteristics	416	● Objective Questions	470
Distribution of Population	417	✎ Practice Test Papers-1	483-493
Distribution and Density		✎ Practice Test Papers-2	494-504
of Population	417		

Syllabus

UNIT-I

Geomorphology

Continental Drift, Plate Tectonics, Endogenetic and Exogenetic forces. Denudation and Weathering, Geomorphic Cycle (Davis and Penck), Theories and Process of Slope Development, Earth Movements (seismicity, folding, faulting and vulcanicity), Landform Occurrence and Causes of Geomorphic Hazards (earthquakes, volcanoes, landslides and avalanches)

UNIT-II

Climatology

Composition and Structure of Atmosphere; Insolation, Heat Budget of Earth, Temperature, Pressure and Winds, Atmospheric Circulation (air-masses, fronts and upper air circulation, cyclones and anticyclones (tropical and temperate), Climatic Classification of Koppen & Thornthwaite, ENSO Events (El Nino, La Nina and Southern Oscillations), Meteorological Hazards and Disasters (Cyclones, Thunderstorms, Tornadoes, Hailstorms, Heat and Cold waves, Drought and Cloudburst, Glacial Lake Outburst (GLOF), Climate Change: Evidences and Causes of Climatic Change in the past, Human impact on Global Climate.

UNIT-III

Oceanography

Relief of Oceans, Composition : Temperature, Density and Salinity, Circulation : Warm and Cold Currents, Waves, Tides, Sea Level Changes, Hazards : Tsunami and Cyclone.

UNIT-IV

Geography of Environment

Components : Ecosystem (Geographic Classification) and Human Ecology, Functions : Trophic Levels, Energy Flows, Cycles (geo-chemical, carbon, nitrogen and oxygen), Food Chain, Food Web and Ecological Pyramid, Human Interaction and Impacts, Environmental Ethics and Deep Ecology, Environmental Hazards and Disasters (Global Warming, Urban Heat Island, Atmospheric Pollution, Water Pollution, Land Degradation), National Programmes and Policies: Legal Framework, Environmental Policy, International Treaties, International Programmes and Policies (Brundtland Commission, Kyoto Protocol, Agenda 21, Sustainable Development Goals, Paris Agreement)

UNIT-V

Population and Settlement Geography

Population Geography

Sources of population data (census, sample surveys and vital statistics, data reliability and errors). World Population Distribution (measures, patterns and determinants), World Population Growth (prehistoric to modern period). Demographic Transition, Theories of Population Growth (Malthus, Sadler, and Ricardo). Fertility and Mortality Analysis (indices, determinants and world patterns). Migration (types, causes and consequences and models), Population Composition and Characteristics (age, sex, rural-urban, occupational structure and educational levels), Population Policies in Developed and Developing Countries.

Settlement Geography

Rural Settlements (types, patterns and distribution), Contemporary Problems of Rural Settlements (rural-urban migration; land use changes; land acquisition and transactions), Theories of Origin of Towns (Gordon Childe, Henri Pirenne, Lewis Mumford), Characteristics and Processes of Urbanization in Developed and Developing Countries (factors of urban growth, trends of urbanisation, size, structure and functions of urban areas). Urban Systems (the law of the primate city and rank size rule) Central Place Theories (Christaller and Losch), Internal Structure of the City, Models of Urban Land Use (Burgess, Harris and Ullman, and Hoyt), Concepts of Megacities, Global Cities and Edge Cities, Changing Urban Forms (peri-urban areas, rural-urban fringe, suburban, ring and satellite towns), Social Segregation in the City, Urban Social Area Analysis, Manifestation of Poverty in the City (slums, informal sector growth, crime and social exclusion).

Unit-VI

Geography of Economic Activities and Regional Development

Economic Geography

Factors affecting spatial organisation of economic activities (primary, secondary, tertiary and quaternary), Natural Resources (classification, distribution and associated problems), Natural Resources Management. World Energy Crises in Developed and Developing Countries.

Agricultural Geography

Land capability classification and Land Use Planning, Cropping Pattern : Methods of delineating crop combination regions (Weaver, Doi and Rafiullah), Crop diversification, Von Thunen's Model of Land Use Planning. Measurement and Determinants of Agricultural Productivity, Regional variations in Agricultural Productivity, Agricultural Systems of the World.

Industrial Geography

Classification of Industries, Factors of Industrial Location; Theories of Industrial Location (A. Weber, E. M. Hoover, August Losch, A. Pred and D. M. Smith).

World Industrial Regions, Impact of Globalisation on manufacturing sector in Less Developed Countries, Tourism Industry, World distribution and growth of Information and Communication Technology (ICT) and Knowledge Production (Education and R & D) Industries.

Geography of Transport and Trade

Theories and Models of spatial interaction (Edward Ullman and M. E. Hurst) Measures and Indices of connectivity and accessibility; Spatial Flow Models : Gravity Model and its variants, World Trade Organisation, Globalisation and Liberalisation and World Trade Patterns. Problems and Prospects of Inter and Intra Regional Cooperation and Trade.

Regional Development

Typology of Regions, Formal and Fictional Regions, World Regional Disparities, Theories of Regional Development (Albert O. Hirschman, Gunnar Myrdal, John Friedman, Dependency Theory of Under-development, Global Economic Blocks, Regional Development and Social Movements in India.

Unit-VII

Cultural, Social and Political Geography

Cultural and Social Geography

Concept of Culture, Cultural Complexes, Areas and Region, Cultural Heritage, Cultural Ecology. Cultural Convergence, Social Structure and Processes, Social Well-being and Quality of Life, Social Exclusion, Spatial distribution of social groups in India (Tribe, Caste, Religion and Language), Environment and Human Health, Diseases Ecology, Nutritional Status (etiological conditions, classification and spatial and seasonal distributional patterns with special reference to India) Health Care Planning and Policies in India, Medical Tourism in India.

Political Geography

Boundaries and Frontiers (with special reference to India), Heartland and Rimland Theories. Trends and Developments in Political Geography, Geography of

Federalism, Electoral Reforms in India, Determinants of Electoral Behaviour, Geopolitics of Climate Change, Geopolitics of World Resources, Geo-politics of India Ocean, Regional Organisations of Cooperation (SAARC, ASEAN, OPEC, EU). Neopolitics of World Natural Resources.

Unit-VIII

Geographic Thought

Contributions of Greek, Roman, Arab, Chinese and Indian Scholars, Contributions of Geographers (Bernhardus Varenius, Immanuel Kant, Alexander von Humboldt, Carl Ritter, Scheafer & Hartshorne), Impact of Darwinian Theory on Geographical Thought. Contemporary trends in Indian Geography : Cartography, Thematic and Methodological contributions. Major Geographic Traditions (Earth Science, man-environment relationship, area studies and spatial analysis), Dualisms in Geographic Studies (physical vs. human, regional vs. systematic, qualitative vs. quantitative, ideographic vs. nomothetic), Paradigm Shift, Perspectives in Geography (Positivism, Behaviouralism, Humanism, Structuralism, Feminism and Postmodernism).

Unit IX

Geographical Techniques

Sources of Geographic Information and Data (spatial and non-spatial), Types of Maps, Techniques of Map Making (Choropleth, Isarithmic, Dasymetric, Chorochromatic, Flow Maps) Data Representation on Maps (Pie diagrams, Bar diagrams and Line Graph, GIS Database (raster and vector data formats and attribute data formats). Functions of GIS (conversion, editing and analysis), Digital Elevation Model (DEM), Georeferencing (coordinate system and map projections and Datum), GIS Applications (thematic cartography, spatial decision support system), Basics of Remote Sensing (Electromagnetic Spectrum, Sensors and Platforms, Resolution and Types, Elements of Air Photo and Satellite Image Interpretation and Photogrammetry), Types of Aerial Photographs, Digital Image Processing : Developments in Remote Sensing Technology and Big Data Sharing and its applications

in Natural Resources Management in India, GPS Components (space, ground control and receiver segments) and Applications, Applications of Measures of Central Tendency, Dispersion and Inequalities, Sampling, Sampling Procedure and Hypothesis Testing (*chi* square test, *t* test, ANOVA), Time Series Analysis, Correlation and Regression Analysis, Measurement of Indices, Making Indicators Scale Free, Computation of Composite Index, Principal Component Analysis and Cluster Analysis, Morphometric Analysis : Ordering of Streams, Bifurcation Ratio, Drainage Density and Drainage Frequency, Basin Circularity Ratio and Form Factor, Profiles, Slope Analysis, Clinographic Curve, Hypsographic Curve and Altimetric Frequency Graph.

Unit-X

Geography of India

Major Physiographic Regions and their Characteristics; Drainage System (Himalayan and Peninsular), Climate: Seasonal Weather Characteristics, Climatic Divisions, Indian Monsoon (mechanism and characteristics), Jet Streams and Himalayan Cryosphere, Types and Distribution of Natural Resources: Soil, Vegetation, Water, Mineral and Marine Resources. Population Characteristics (spatial patterns of distribution), Growth and Composition (rural-urban, age, sex, occupational, educational, ethnic and religious), Determinants of Population, Population Policies in India, Agriculture (Production, Productivity and Yield of Major Food Crops), Major Crop Regions, Regional Variations in Agricultural Development, Environmental, Technological and Institutional Factors affecting Indian Agriculture; Agro-Climatic Zones, Green Revolution, Food Security and Right to Food. Industrial Development since Independence, Industrial Regions and their characteristics, Industrial Policies in India. Development and Patterns of Transport Networks (railways, roadways, waterways, airways and pipelines), Internal and External Trade (trend, composition and directions), Regional Development Planning in India, Globalisation and its impact on Indian Economy, Natural Disasters in India (Earthquake, Drought, Flood, Cyclone, Tsunami, Himalayan Highland Hazards and Disasters.)

