

Geography of India

FIFTH
Edition

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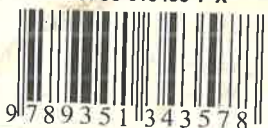
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Geography of India

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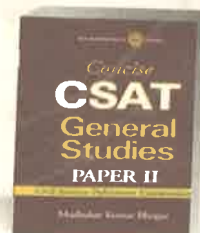
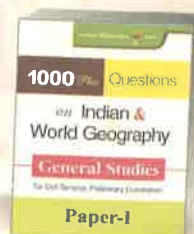
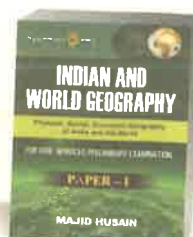
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To
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To
My students and grandchildren,
My hope for the future

agricultural productivity, agricultural efficiency, crop combinations, crop concentration, crop diversification, land classification, cropping patterns and land capability have been referenced in India and abroad. The concepts, like Potential Production Unit (PPU), Carrying Capacity of Land and Food Balance Sheets were used in geographical research in India for the first time by him.

A philosophical but unassuming personality, Prof. Shafi was an original thinker, a creative writer and an articulate speaker. An ardent Muslim and a staunch believer in God, he considered the good and well-being of the whole of humanity. Dressed in western style, he was confident in his attitude, courteous in nature, with refined manners with polished etiquettes. He maintained good and cordial relations with his friends and colleagues. Apart from academics, he ably discharged his administrative responsibilities as Chairman of the Department for over 22 years, Provost of Sulaiman Hall, Dean Faculty of Sciences, Pro-Vice-Chancellor and officiating Vice-Chancellor.

Prof. Shafi played a key role in defining the directions of Geography. He inspired young geographers to conduct field studies in teaching and research, advised students to be conscientious of their duties and to maintain a high moral character. I feel proud to be one of his students to whom he remained a motivating force in my career and life. The national and international fraternity of geographers and academicians shall miss him, and shall cherish his memory forever. May his soul rest in peace!

MAJID HUSAIN

ABOUT THE CIVIL SERVICES EXAMINATION

The Civil Services examination comprises two successive stages:

- (i) Civil Services (Preliminary) Examination (Objective Type) for the selection of candidates for Main Examination; and
- (ii) Civil Services (Main) Examination (Written and Interview) for the selection of candidates for the various services and posts.

Scheme and subjects for the Preliminary and Main Examination.

A. PRELIMINARY EXAMINATION

The Examination shall comprise two compulsory Papers of 200 marks each.

Note:

- (i) Both the question papers will be of the objective type (multiple choice questions).
- (ii) The question papers will be set both in Hindi and English. However, questions relating to English Language Comprehension Skills of Class X level will be tested through passages from English language only without providing Hindi translation thereof in the question paper.

B. MAIN EXAMINATION

The written examination will consist of the following papers:

Qualifying Papers:

Paper A: (One of the Indian Language to be selected by the candidate from the Languages included in the Eighth Schedule to the Constitution). 300 Marks

Paper B: English 300 Marks

The papers on Indian Languages and English (Paper A and Paper B) will be of Matriculation or equivalent standard and will be of qualifying nature. The marks obtained in these papers will not be counted for ranking.

Papers to be counted for merit

Paper I: Essay 250 Marks

Paper II: General Studies-I 250 Marks
(Indian Heritage and Culture, History and Geography of the World and Society)

Paper III: General Studies –II (Governance, Constitution, Polity, Social Justice and International Relations)	250 Marks
Paper IV: General Studies –III (Technology, Economic Development, Bio-diversity, Environment, Security and Disaster Management)	250 Marks
Paper V: General Studies –IV (Ethics, Integrity and Aptitude)	250 Marks
Paper VI: Optional Subject – Paper 1	250 Marks
Paper VII: Optional Subject – Paper 2	250 Marks
Sub Total (Written test):	1750 Marks
Personality Test:	275 Marks
Grand Total:	2025 Marks

Candidates may choose any one of the optional subjects from amongst the list of subjects given below:

List of optional subjects for Main Examination:

- (i) Agriculture
- (ii) Animal Husbandry and Veterinary Science
- (iii) Anthropology
- (iv) Botany
- (v) Chemistry
- (vi) Civil Engineering
- (vii) Commerce and Accountancy
- (viii) Economics
- (ix) Electrical Engineering
- (x) Geography
- (xi) Geology
- (xii) History
- (xiii) Law
- (xiv) Management
- (xv) Mathematics
- (xvi) Mechanical Engineering
- (xvii) Medical Science
- (xviii) Philosophy
- (xix) Physics
- (xx) Political Science and International Relations
- (xxi) Psychology
- (xxii) Public Administration
- (xxiii) Sociology
- (xxiv) Statistics
- (xxv) Zoology
- (xxvi) Literature of any one of the following
Assamese, Bengali, Bodo, Dogri, Gujarati, Hindi, Kannada, Kashmiri, Konkani, Maithili, Malayalam, Manipuri, Marathi, Nepali, Oriya, Punjabi, Sanskrit, Santhali, Sindhi, Tamil, Telugu, Urdu and English.

GEOGRAPHY SYLLABUS FOR MAIN EXAMINATION

Paper-I

Principles of Geography

Physical Geography

- (i) **Geomorphology** : Factors controlling landform development; endogenetic and exogenetic forces; Origin and evolution of the earth's crust; Fundamentals of geomagnetism; Physical conditions of the earth's interior; Geosynclines; Continental drift; Isostasy; Plate tectonics; Recent views on mountain building; Vulcanicity; Earthquakes and Tsunamis; Concepts of geomorphic cycles and Landscape development ; Denudation chronology; Channel morphology; Erosion surfaces; Slope development ;Applied Geomorphology: Geohydrology, economic geology and environment
- (ii) **Climatology** : Temperature and pressure belts of the world; Heat budget of the earth; Atmospheric circulation; atmospheric stability and instability. Planetary and local winds; Monsoons and jet streams; Air masses and fronto genesis, Temperate and tropical cyclones; Types and distribution of precipitation; Weather and Climate; Koppen's, Thornthwaite's and Trewartha's classification of world climates; Hydrological cycle; Global climatic change and role and response of man in climatic changes, Applied climatology and Urban climate.
- (iii) **Oceanography** : Bottom topography of the Atlantic, Indian and Pacific Oceans; Temperature and salinity of the oceans; Heat and salt budgets, Ocean deposits; Waves, currents and tides; Marine resources: biotic, mineral and energy resources; Coral reefs, coral bleaching; sealevel changes; law of the sea and marine pollution.
- (iv) **Biogeography** : : Genesis of soils; Classification and distribution of soils; Soil profile; Soil erosion, Degradation and conservation; Factors influencing world distribution of plants and animals; Problems of deforestation and conservation measures; Social forestry; agro-forestry; Wild life; Major gene pool centres.
- (v) **Environmental Geography** : Principle of ecology; Human ecological adaptations; Influence of man on ecology and environment ; Global and regional ecological changes and imbalances; Ecosystem their management and conservation; Environmental degradat ion, management and conservation; Biodiversity and sustainable development; Environmental policy; Environmental hazards and remedial measures; Environmental education and legislation.

Human Geography

- (i) **Perspectives in Human Geography** : Areal differentiation; regional synthesis; Dichotomy and dualism; Environmentalism; Quant it at ive revolut ion and locat ional analysis; radical, behavioural, human and

welfare approaches; Languages, religions and secularisation; Cultural regions of the world; Human development index.

- (ii) **Economic Geography** : World economic development: measurement and problems; World resources and their distribution; Energy crisis; the limits to growth; World agriculture: typology of agricultural regions; agricultural inputs and productivity; Food and nutrition problems; Food security; famine: causes, effects and remedies; World industries; locational patterns and problems; patterns of world trade.
- (iii) **Population and Settlement Geography** : Growth and distribution of world population; demographic attributes; Causes and consequences of migration; concepts of over - under-and optimum population; Population theories, world population problems and policies, Social well-being and quality of life; Population as social capital. Types and patterns of rural settlements; Environmental issues in rural settlements; Hierarchy of urban settlements; Urban morphology: Concepts of primate city and rank-size rule; Functional classification of towns; Sphere of urban influence; Rural - urban fringe; Satellite towns; Problems and remedies of urbanization; Sustainable development of cities.
- (iv) **Regional Planning** : Concept of a region; types of regions and methods of regionalisation; growth centres and growth poles; regional imbalances; environmental issues in regional planning; planning for sustainable development.
- (v) **Models, Theories and Laws in Human Geography** : System analysis in Human Geography; Malthusian, Marxian and Demographic Transition models; Central Place theories of Christaller and Losch; Von Thunen's model of agricultural location; Weber's model of industrial location; Rostov's model of stages of growth. Heart-land and Rimland theories; laws of international boundaries and frontiers.

Note: Candidates will be required to answer one compulsory map question pertinent to subjects covered by this paper.

PART II

Geography Of India

1. **Physical Setting**: Space relationship of India with neighboring countries; Structure and relief; Drainage system and watersheds; Physiographic regions; Mechanism of Indian monsoons and rainfall patterns, Tropical cyclones and western disturbances; Floods and droughts; Climatic regions; Natural vegetation; Soil types and their distributions.
2. **Resources**: Land, surface and ground water, energy, minerals, biotic and marine resources; Forest and wild life resources and their conservation; Energy crisis.
3. **Agriculture**: Infrastructure: irrigation, seeds, fertilizers, power; Institutional factors: land holdings, land tenure and land reforms; Cropping pattern, agricultural productivity, agricultural intensity, crop combination, land capability; Agro and social forestry; Green revolution and its socioeconomic and ecological implications; Significance of dry farming; Livestock resources and white revolution; aquaculture; sericulture, apiculture and poultry; agricultural regionalisation; agro-climatic zones; agro-ecological regions.
4. **Industry** : Evolution of industries ; Locational factors of cotton, jute, textile, iron and steel, aluminium, fertilizer, paper, chemical and pharmaceutical, automobile, cottage and agro-based industries; Industrial houses and complexes including public sector undertakings; Industrial regionalisation; New industrial policies; Multinationals and liberalization; Special Economic Zones; Tourism including eco-tourism.
5. **Transport, Communication and Trade**: Road, railway, waterway, airway and pipeline networks and their complementary roles in regional development; Growing importance of ports on national and

- foreign trade; Trade balance; Trade Policy; Export processing zones; Developments in communication and information technology and their impacts on economy and society; Indian space programme.
6. **Cultural Setting**: Historical Perspective of Indian Society; Racial, linguistic and ethnic diversities; religious minorities; major tribes, tribal areas and their problems; cultural regions; Growth, distribution and density of population; Demographic attributes: sex-ratio, age structure, literacy rate, work-force, dependency ratio, longevity; migration (inter-regional, intra-regional and international) and associated problems; Population problems and policies; Health indicators.
7. **Settlements**: Types, patterns and morphology of rural settlements; Urban developments; Morphology of Indian cities; Functional classification of Indian cities ; Conurbations and metropolitan regions; urban sprawl; Slums and associated problems; town planning; Problems of urbanization and remedies.
8. **Regional Development and Planning**: Experience of regional planning in India; Five Year Plans; Integrated rural development programmes; Panchayati Raj and decentralised planning; Command area development; Watershed management; Planning for backward area, desert, drought prone, hill, tribal area development; multi-level planning; Regional planning and development of island territories.
9. **Political Aspects**: Geographical basis of Indian federalism; State reorganisation; Emergence of new states; Regional consciousness and inter state issues; international boundary of India and related issues; Cross border terrorism; India's role in world affairs; Geopolitics of South Asia and Indian Ocean realm.
10. **Contemporary Issues**: Ecological issues: Environmental hazards: landslides earth quakes, Tsunamis, floods and droughts, epidemics; Issues relating to environmental pollution; Changes in patterns of land use; Principles of environmental impact assessment and environmental management; Population explosion and food security; Environmental degradation; Deforestation, desertification and soil erosion; Problems of agrarian and industrial unrest; Regional disparities in economic development ; Concept of sustainable growth and development; Environmental awareness; Linkage of rivers; Globalisation and Indian economy.

Note: Candidates will be required to answer one compulsory map question pertinent to subjects covered by this paper.

CONTENTS

	...vii
	...ix
<i>Preface to the Fifth Edition</i>	...xi
<i>Preface to the First Edition</i>	...xiii
<i>Acknowledgements</i>	...xv
<i>Tribute</i>	...xvii
<i>About the Civil Services Examination</i>	
<i>Geography Syllabus for Main Examination</i>	1.1-1.15

1. Structure of India

<i>Introduction</i>	/ 1.1
<i>The Archaean Formations (Pre-Cambrian)</i>	/ 1.1
<i>Dharwar System (Proterozoic Formations)</i>	/ 1.3
<i>The Giddalaph System (The Purana Group)</i>	/ 1.6
<i>The Vindhyan System</i>	/ 1.8
<i>The Palaeozoic Group (Cambrian to Carboniferous Period)</i>	/ 1.8
<i>The Mesozoic Era (The Gondwana System)</i>	/ 1.9
<i>The Cretaceous System (The Deccan Trap)</i>	/ 1.11
<i>The Tertiary System (The Cenozoic Era)</i>	/ 1.12
<i>The Quaternary Period (The Pleistocene and Recent Formations)</i>	/ 1.13
<i>References</i>	/ 1.15

2.1-2.45

2. Physiography

<i>Introduction</i>	/ 2.1
<i>Origin and Physiography of the Peninsular India</i>	/ 2.1
<i>The Himalayas</i>	/ 2.10
<i>The Great Plains of India</i>	/ 2.28
<i>The Coastal Plains</i>	/ 2.38
<i>Earthquakes in India</i>	/ 2.41
<i>Vulcanicity</i>	/ 2.43
<i>References</i>	/ 2.45

3. Drainage

- The Drainage System* / 3.1
- Drainage Pattern* / 3.1
- River Basins of India* / 3.5
- The Multiple River Theory* / 3.10
- River Systems of the Himalayan Drainage* / 3.10
- Main Rivers of Peninsular India* / 3.19
- Easterly Rivers of the Peninsular Region* / 3.20
- River Regimes* / 3.22
- Shifting Courses of the Rivers* / 3.25
- Types of Lakes* / 3.26
- Main Lakes of India* / 3.27
- Water Resources of India* / 3.31
- The Inter-State Water Disputes* / 3.36
- International Agreements for Surface Water Resources* / 3.36
- National Water Grid* / 3.37
- Ground Water Resources of India* / 3.40
- The National Water Policy* / 3.42
- Main Waterfalls of India* / 3.43
- References* / 3.46

4. Climate

- Introduction* / 4.1
- Indian Monsoon* / 4.1
- Indian Monsoons and the Tibet Plateau* / 4.6
- Jet Stream and Indian Monsoons* / 4.9
- El-Nino and the Indian Monsoon* / 4.10
- Burst of Monsoon* / 4.12
- Breaks in the Monsoon* / 4.13
- Seasons in India* / 4.15
- Rainfall Distribution* / 4.25
- Variability of Rainfall* / 4.26
- Climatic Regions of India* / 4.27
- Koppen's Classification of Indian Climate* / 4.28
- Climatic Divisions by Stamp and Kendrew* / 4.30
- Trewartha's Classification of Indian Climate* / 4.33
- Climatic Divisions of India by R.L. Singh (1971)* / 4.35
- Droughts* / 4.37
- Floods* / 4.40
- References* / 4.46

5. Natural Vegetation and National Parks

- Introduction* / 5.1
- Floristic Regions of India* / 5.2
- Spatial Distribution of Forests in India* / 5.4
- Classification of Forests* / 5.7
- Important Species of Trees and Their Utility* / 5.11

5.1-5.32

- Forest Products and their Utility* / 5.14
- Problems of Indian Forestry* / 5.17
- The National Forest Policy* / 5.18
- Social Forestry* / 5.19
- Existing Position of Forest Ecosystems* / 5.21
- Forest Conservation* / 5.22
- Wildlife* / 5.23
- Mangroves* / 5.28
- Western Ghats: A World Heritage Site* / 5.30
- References* / 5.32

6.1-6.20

6. Soils

- Introduction* / 6.1
- Characteristics of Soil* / 6.1
- Classification of Soils of India* / 6.4
- Problems of Indian Soils* / 6.10
- Consequences of Soil Erosion* / 6.16
- Soil Conservation* / 6.17
- References* / 6.19

7.1-7.28

7. Resources

- Natural Resources* / 7.1
- Mineral Resources* / 7.2
- Biotic Resources* / 7.25
- References* / 7.28

8.1-8.30

8. Energy Resources

- Sources of Conventional Energy* / 8.1
- Non-Conventional Energy* / 8.26
- Energy Crisis* / 8.29
- Energy Conservation* / 8.30
- References* / 8.30

9.1-9.68

9. Agriculture

- Land Utilisation* / 9.1
- Characteristics and Problems of Indian Agriculture* / 9.5
- Determinants of Agriculture* / 9.11
- Land Reforms* / 9.15
- Infrastructure and Agricultural Inputs* / 9.19
- Second Green Revolution* / 9.47
- White Revolution* / 9.48
- Blue Revolution* / 9.51
- Aquaculture* / 9.55
- Apiculture (Beekeeping) or Golden Revolution* / 9.56
- Sericulture* / 9.58
- Poultry Farming (Silver Revolution)* / 9.59
- Horticulture* / 9.61

- Dry Farming / 9.62
- Agribusiness / 9.65
- National Commission on Farmers / 9.66
- Indian Agriculture—Challenges and Prospects / 9.67
- New National Agricultural Policy / 9.68
- References / 9.68

10.1–10.27

10. Spatial Organisation of Agriculture

- Cropping Patterns / 10.1
- Crop Concentration / 10.3
- Agricultural Productivity / 10.4
- Agricultural Intensity / 10.7
- Crop Combinations / 10.8
- Land Capability / 10.11
- Contract Farming / 10.13
- Agricultural Regionalisation / 10.13
- Agro-Climatic Regions of India / 10.19
- Agro-Ecological Regions of India / 10.24
- References / 10.27

11.1–11.70

11. Industries

- Evolution of Industries / 11.1
- Industrial Development During the Five-Year Plans / 11.2
- Industrial Policy / 11.4
- Cotton Textile Industry / 11.5
- Jute Textile / 11.11
- Woollen Textiles / 11.14
- Silk Textile / 11.16
- Iron and Steel Industry / 11.18
- Aluminium Industry / 11.24
- Automobile Industry / 11.27
- Chemical Industry / 11.30
- Fertiliser Industry / 11.31
- Paper Industry / 11.33
- Pharmaceutical Industry / 11.37
- Cottage Industries / 11.39
- Industrial regions of India / 11.41
- Multinationals / 11.46
- Liberalisation / 11.48
- Industrial Problems of India / 11.50
- Special Economic Zone (SEZ) / 11.51
- Public Sector Undertaking / 11.53
- Tourism / 11.55
- Eco-Tourism / 11.60
- Industrial Houses in India / 11.64
- Industrial Complexes / 11.68
- References / 11.70

12.1–12.38

12. Transport, Communications, and Trade

- Transport / 12.1
- Communications / 12.26
- International Trade / 12.29
- Balance of Trade and Balance of Payment / 12.32
- Trade Policy / 12.34
- India—Space Programme / 12.35
- References / 12.38

13.1–13.83

13. Cultural Setting

- Origin of Mankind / 13.1
- Historical Perspective of Indian Society / 13.2
- The Caste System / 13.3
- Racial and Ethnic Diversity in India / 13.5
- Religious Minorities / 13.10
- Scheduled Tribes / 13.11
- Scheduled Castes (16.20% of the total Population) / 13.25
- Cultural Regions / 13.28
- Demographic Characteristics of Indian Population / 13.41
- Literacy Rate / 13.60
- Age Composition / 13.65
- Migration / 13.67
- Population Problems / 13.76
- Health Indicators / 13.80
- Human Development Index in India / 13.81
- References / 13.83

14.1–14.55

14. Settlements

- Introduction / 14.1
- Classification of Settlements / 14.1
- City Region and Planning / 14.42
- Slums and Associated Problems / 14.44
- Problems of Urbanisation / 14.48
- Town Planning in India / 14.50
- References / 14.54

15.1–15.51

15. Regional Development and Planning

- Planning in India / 15.1
- Experience of Regional Planning / 15.1
- Five-Year Plans / 15.3
- Regional Dimensions of Planning in India / 15.7
- Integrated Area Development / 15.10
- Integrated Rural Development Programme (IRDP) / 15.11
- Development of Backward Areas / 15.12
- Command Area Development / 15.13
- Watershed Management / 15.15
- Area Development Programmes / 15.16

National Watershed Development Project for Rainfed Areas (NWDPA) / 15.25	
Rainfed Area Development Programme (RADP) / 15.25	
Multi-Level Planning / 15.25	
The Damodar Valley Corporation / 15.29	
The National Capital Region (NCR) / 15.34	
Poverty in India / 15.41	
Geography and Regional Planning / 15.44	
Regional Planning and Development of Island Territories / 15.47	
References / 15.50	16.1–16.46

16. India—Political Aspects

Political Geography / 16.1	
Structure of Indian Federation / 16.6	
Regional Consciousness and National Integration / 16.10	
National Integration in India / 16.12	
Nationalism / 16.14	
International Boundaries of India / 16.15	
Cross Border Terrorism / 16.27	
India's Role in World Affairs / 16.31	
Geopolitics of South Asia / 16.32	
India and the Geo-Politics of the Indian Ocean / 16.34	
References / 16.45	17.1–17.54

17. Contemporary Issues

Environmental Hazards / 17.1	
Natural Disasters / 17.1	
Cloudburst / 17.17	
Environmental Pollution / 17.22	
Environmental Awareness / 17.25	
Changes in Patterns of Land Use / 17.26	
Environmental Impact Assessment (EIA) / 17.27	
Environmental Management / 17.27	
Population Explosion and Food Security / 17.28	
Environmental Degradation / 17.31	
Problems of Agrarian Unrest / 17.35	
Industrial Unrest / 17.37	
Regional Disparities in Economic Development / 17.38	
Relationship between Population and Development / 17.43	
Sustainable Growth and Development / 17.44	
Globalisation and Indian Economy / 17.48	
Agriculture and Globalisation / 17.51	
References / 17.54	A.1–A.19

Appendices

Multiple Choice Questions

A.1–A.19

Q.1–Q.26

Chapter

1

Structure of India

INTRODUCTION

The geological structure of a country helps in understanding the types and character of rocks and slopes, the physical and chemical properties of soils, the availability of minerals, and the surface and underground water resources. All these resources have a direct impact on the socio-economic development of the people of a country, or region.

Geologically, the subcontinent of India was a part of the Gondwanaland (the Southern Continent). The geological history of India is unique, as Peninsular India was a part of the old landmass since the formation of the Earth's crust, which grew in complexity as a succession of Alpine-orogeny resulting in the upheaval of the Himalayas in the Tertiary Period and the aggradational formation of the Indo-Gangetic Plain during the Pleistocene Period. The latter continues till today, through sedimentation in the flood plains of the rivers and the lower part of the Gangetic Plain, namely the Hugli basin. The geological history of India is complex as well as varied. It begins with the first formation of the Earth's crust, first deposited sedimentary rocks, first orogeny, and extends up to the recent laying down of alluvial deposits. Many of these rock formations occur in superimposed positions and have been subjected to intense folding and faulting. The geological structure of India has been described briefly in the following sections (Fig. 1.1).

THE ARCHAEOAN FORMATIONS (PRE-CAMBRIAN)

The Archaeian Era is also known as the Precambrian Period. This is the division of geologic time scale from the formation of the Earth (about 4.6 billion years ago) to the beginning of the Cambrian Period of the Paleozoic Era (about 570 million years ago).

The Precambrian time constitutes about 86.7% of the Earth's history. The term 'Archaeian', introduced by J.D. Dana in 1782, refers to the oldest rocks of the Earth's crust. The oldest known rocks of the Earth, the evolutionary atmosphere, the first chemosynthesis, the first photosynthesis, the life-supporting atmosphere and the Earth's modern atmosphere, were developed during the Precambrian Era (Archaeian and Protozoic). Rocks of the Archaeian System are devoid of any form of life. In other words, the Archaeian rocks are all azoic or unfossiliferous. They are thoroughly