



# **Savitribai Phule Pune University**

*(Formerly University of Pune)*

**Three Year B.Sc. Degree Program in Geography**

**(Faculty of Science & Technology)**

**S.Y.B.Sc. (Geography)**

**Choice Based Credit System Syllabus**

**To be implemented from Academic Year 2020-21**

## **Title of the Course: B.Sc. Geography**

### **Preamble of the syllabus:**

- i. To introduce the students to the fundamentals concepts of Environmental Geography.
- ii. To acquaint the students with environmental protection laws, acts, planning and management.
- iii. To appraise the students with salient features of the Maharashtra State.
- iv. To acquaint the students with the principles of surveying, its importance, and its utility in the Geographical study.

**Introduction: Pattern – CBCS: Semester (15 marks internal and 35 marks University)**

**Title of the Course: S.Y.B.Sc. Geography**

Year	Semester	Course Type	Course code	Course Name	Credit
2	3	Compulsory Course	GG 231	Environmental Geography-I	2
			GG 232	Geography of Maharashtra (Physical)-I	2
			GG 233	Surveying-I	2
	4	Compulsory Course	GG 241	Environmental Geography-II	2
			GG 242	Geography of Maharashtra (Human)-II	2
			GG 243	Surveying-II	2

**Equivalence of Syllabus in Geography (S.Y.B.Sc.) with effects from June 2020**

Paper	Old Syllabus (2014)		New Syllabus-2020	
	Course Code	Name	Course code	Name
1	Gg 211:	Geography of Resources – I	GG 231	Environmental Geography -I
	Gg 211:	Geography of Resources – II	GG 241	Environmental Geography -II
2	Gg 212:	Watershed Management – I	GG 232	Geography of Maharashtra (Physical)-I
	Gg 212:	Watershed Management – II	GG 242	Geography of Maharashtra (Human)-II
3	Gg 201	Map Projections & Surveying	GG 233	Surveying-I
			GG 243	Surveying-II

**SAVITRIBAI PHULE PUNE UNIVERSITY, PUNE****Choice Based Credit System**

(With effect from June 2020)

**S.Y.B.Sc. Syllabus, Semester-III****Environmental Geography –I (Paper-I)****Course No: GG 231****No. of Credits: 02****No. of hours: 30****Objectives:**

- i. To create environmental awareness amongst the students.
- ii. To familiarize the students with fundamentals concepts of Environmental Geography.
- iii. To acquaint the students to past, present, and future utility and potentials of resources at regional, national and global levels.
- iv. To enable the students to understand dynamics of man–environment relationship in various region of the world.

<b>Unit No.</b>	<b>Topic</b>	<b>Sub-Topics</b>	<b>Learning Points</b>	<b>Hours</b>
1	Introduction to Environmental Geography	Introduction and Ecosystems	1. Introduction to Environmental Geography a) Meaning and definition b) Nature, scope and significance c) Types of environment. 2. Ecosystem: a) Definition and concept b) Structure (Biotic and abiotic factors) and function (Food chain, trophic level, food web, energy flow) c) Major types of ecosystem: Equatorial and River ecosystems	<b>10</b>
2	Man and environment relationship	The relationship between human life and environment in different regions	1. Human life in the mountain region 2. Human life in the desert region 3. Human life in the coastal region	<b>6</b>

3	Environmental Problems	Global issues and India's major problems	<ol style="list-style-type: none"> <li>1. Major global environmental issues: Causes and effects of <ol style="list-style-type: none"> <li>a) Climate change</li> <li>b) Stratospheric ozone depletion</li> <li>c) Biodiversity depletion</li> </ol> </li> <li>2. Major environmental issues in India: causes and effects of <ol style="list-style-type: none"> <li>a) Loss of biodiversity</li> <li>b) Water pollution</li> <li>c) Air pollution</li> <li>d) Noise pollution</li> <li>e) Nuclear (Atomic) pollution</li> </ol> </li> </ol>	8
4	Specific Environmental issues in India	Major environmental crises in India and efforts to resolve them	<ol style="list-style-type: none"> <li>1. Energy crisis: Impact and remedial measures</li> <li>2. Major environmental movements in India: <ol style="list-style-type: none"> <li>a) Western Ghat Conservation</li> <li>b) Chipako Movement</li> <li>c) Narmada Bachao Andolan</li> </ol> </li> </ol>	6

### Reference Books:-

1. Chandna, R. C., (2002). Environmental Geography. Kalyani Publishers, Ludhiana.
2. Cunningham, W. P., and Cunningham, M. A., (2004). Principles of Environmental Science: Inquiry and Applications, Tata McGraw-Hill, New Delhi.
3. Gautam, A., (2007). Environmental Geography, Sharda Pustak Bhawan Allahabad
4. Gholap, T.N., (2000). Environment Science, Nishikant Publication, Pune (Marathi).
5. Goudie, A., (2001). The Nature of the Environment. Blackwell, Oxford.
6. Huggett, R.J., (1998). Fundamentals of Biogeography. Routledge, London.
7. Kormondy, E. J., (2012). Concepts of Ecology. PHI Learning Pvt. Ltd., New Delhi.
8. Miller, G. T., (2004). Environmental Science: Working with the Earth, 5th edition, Thomson/ Brooks Cole, Singapore.
9. Odum, E. P., (2006). Fundamentals of Ecology, 6th edition, Cengage Learning India.
10. Saxena, H.M., (2017). Environmental Geography. 3rd edition, Rawat Publication, Jaipur.
11. Sharma, P.D., (2015). Ecology and Environment. Rastogi Publications, Meerut.
12. Singh, R.B., (2009). Biogeography and Biodiversity. Rawat Publication, Jaipur.
13. Singh, R.B., (1998). Ecological Techniques and Approaches to Vulnerable Environment. Oxford & IBH Pub, New Delhi.
14. Singh, S., (1997). Environmental Geography. Prayag Pustak Bhawan. Allahabad.

**SAVITRIBAI PHULE PUNE UNIVERSITY, PUNE**

**Choice Based Credit System**

(With effect from June 2020)

**S.Y.B.Sc. Syllabus, Semester-III**

**Geography of Maharashtra (Physical)-I (Paper II)**

**Course No: GG 232**

**No. of Credits: 02**

**No. of hours: 30**

**Objectives:**

- i. To appraise the students with salient features of the Maharashtra State.
- ii. To familiarize the students with the climatic characteristics of the State.
- iii. To make the students aware of the geographic problems of Maharashtra in the view of sustainable development.

Unit No.	Topic	Sub-Topics	Learning Points	Hour
1.	Introduction to Geography of Maharashtra	Location, Extent, Administrative divisions	<ol style="list-style-type: none"> <li>1. Location &amp; extent of Maharashtra</li> <li>2. Introduction to Maharashtra-Geology, Historical and political background</li> <li>3. Administrative divisions of Maharashtra</li> </ol>	06
2.	Physiography and Drainage of Maharashtra	Major physiographic divisions of Maharashtra  Major rivers of Maharashtra	<ol style="list-style-type: none"> <li>1. Physical Divisions of Maharashtra               <ol style="list-style-type: none"> <li>i. The Konkan Lowland</li> <li>ii. Western Ghat/Sahyadri</li> <li>iii. Maharashtra Plateau (<i>Desh</i>)</li> </ol> </li> <li>2. Major Rivers of Maharashtra               <ol style="list-style-type: none"> <li>i. East flowing rivers: Godavari, Krishna and Bhima</li> <li>ii. West flowing rivers- Tapi, Purna and Konkan rivers</li> </ol> </li> </ol>	08
3.	Climate	Characteristics and Seasons	<ol style="list-style-type: none"> <li>1. Characteristics of climate in Maharashtra</li> <li>2. Temperature and rainfall distribution in Maharashtra</li> <li>3. Importance of monsoon in Maharashtra</li> </ol>	08

4.	Soils and Natural Vegetation in Maharashtra	Soil: Types and distribution Soil degradation Methods of soil conservation  Vegetation: Types and distribution  Methods of forest conservation	A) Soils: 1. Types and distribution of Soils in Maharashtra 2. Problems of soil erosion and salinization: causes and effects 3. Methods of soil conservation: a) Afforestation b) Soil management c) Crop rotation d) Construction of dam 4. Role of Government in soil conservation in Maharashtra B) Natural Vegetation: 1. Types and distribution of forest in Maharashtra 2. Deforestation: Definition, meaning, causes and effects 3. Methods of Forest conservation a) Reforestation and afforestation b) Prevention of forest fire c) Social forestry and Tree Plantation d) Agroforestry 4. Role of Government in forest conservation in Maharashtra	08
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### Reference Books:-

1. Arunachalam B., (1967), Maharashtra – A study in Physical and Regional Setting, Sheth and Co., Mumbai.
2. Bhamare, S.M., (2013). Geography of Maharashtra, Prashant Publication, Jalgaon.
3. Dasatane S., (1992). Glimpse of Maharashtra. Dasatane Ramchandra and Co., Pune.
4. Deshpande, C. D.,(1971). Geography of Maharashtra. National Book Trust, New Delhi.
5. Diddee, J., et al. (2002). Geography of Maharashtra, Rawat Publication, Jaipur.
6. Dixit, K.R., (1986). Maharashtra in Maps. Maharashtra State Board for Literature and Culture Mantralaya, Bombay (Mumbai).
7. Gadgil G. and Deshpande A., (1988), Maharashtra- Problems, potentials and prospects., Somaiya Publications, Mumbai.
8. Magar Jaykumar (2001). Bharatacha Bhugol. Vidya Publishers, Nagpur. (Marathi)
9. Patil, S. B., (2019). Geography of Maharashtra, Prashant Publication, Jalgaon.
10. Sarang Subhashchandra, (1997). Maharashtracha Bhugol, Vidya Prakashan, Nagpur. (Marathi)
11. Savadi, A.B., (2020). The Mega State -Maharashtra. Nirali Prakashan, Pune.
12. Singh, R. L., (2012). India: A Regional Geography, National Geographical Society of India (NGSI), Banaras.

## SAVITRIBAI PHULE PUNE UNIVERSITY, PUNE

## Choice Based Credit System

(With effect from June 2020)

**S.Y.B.Sc. Syllabus, Semester-III****Surveying –I (Paper III)****Course No. Gg. 233    No. of Credits: 02    No. of Practicals: 15 (4 Hours each Practical)****Note:**

1. Each practical batch should **not have more than 12 students**.
2. A separate question paper should be set for each batch.
3. Four hours of one practical should be allotted.

**Objectives:**

- i. To acquaint the students with the principles of surveying, its importance, and its utility in the Geographical study.
- ii. To familiarize the students with the basic aspects of linear, vertical and angular measurements of surveying.
- iii. To understand the importance, basic principles and uses of GPS in surveying.
- iv. To identify sources and types of errors occurs during surveys.

**(Per batch 12 students)**

<b>Sr. No.</b>	<b>Name of the Topic</b>	<b>Learning Points</b>	<b>No. of Practicals 15 (4 hours/Practical)</b>
1	Introduction to Surveying	<ol style="list-style-type: none"> <li>1. Meaning and Definition of Surveying</li> <li>2. Types of Surveying, Classification of Surveys</li> <li>3. Methods of Surveying.</li> <li>4. Importance of Surveying in Geography</li> <li>5. Introduction to recent surveying techniques: Drone, Total station, DGPS Survey, etc.</li> </ol>	<b>04</b>
2	Plane Table Survey	<ol style="list-style-type: none"> <li>1. Introduction</li> <li>2. Instruments used in Plane Table Survey</li> <li>3. Methods of Plane Table Survey: Radiation and Intersection Method (one example of each method)</li> <li>4. Measurement and conversion of area in different units               <ol style="list-style-type: none"> <li>i. Sq. Meter to Guntha</li> <li>ii. Sq. Meter to Acre</li> <li>iii. Bigha to hectare</li> <li>iv. Sq. Foot to Acre</li> <li>v. Sq. Mile to hectare</li> </ol> </li> <li>5. Merits and Demerits of Plane Table Survey.</li> </ol>	<b>04</b>



3	Prismatic Compass Survey	<ol style="list-style-type: none"> <li>1. Introduction.</li> <li>2. Structure and functions prismatic compass with diagram</li> <li>3. Methods of Prismatic Compass Survey (Open and Close Traverse)</li> <li>4. Correction of bearing and closing error by Bowditch Method</li> <li>5. Merits and Demerits of Prismatic Compass Survey</li> </ol>	<b>04</b>
4	GPS Survey	<ol style="list-style-type: none"> <li>1. Introduction, Definition, and Components of GPS/ Segments of GPS</li> <li>2. Applications of GPS.</li> <li>3. GPS Survey (Plotting of area on a graph with the help of latitude and longitude)</li> <li>4. Introduction about GPS based apps: Aarogya Setu ,Google Earth, GPS Essentials and Solar Calculator app</li> </ol>	<b>03</b>

### Reference Books:-

1. Bygott, J. (1955). Map work and Practical Geography.5<sup>th</sup> Edition, University Tutorial Press, London.
2. Davis, R.E.and Foote, F.S. (1953). Surveying, McGraw-Hill Book Co., New York.
3. Deshpande, G.B. (1991). Surveying, Everest Publishing House, Pune
4. Kanetkar T.P. and Kulkarni S.V. (1983). Surveying and Levelling (Part I and II), Vidyarthi Gruha Prakashan, Pune.
5. Mishra, R.P, and Ramesh A. (2000). Fundamental of Cartography, Concept Publishing, Company, New Delhi.
6. Monkhouse, F.X.J. & Wilkinson, H.R. (1989). Maps & Diagrams, B.I Publications, Bombay.
7. Robinson, A.H. & Sleep, R.D. (1969).Elements of Practical Geography, John Wiley publications, New York.
8. Singh Gopal (1996). Map Work and Practical Geography, Vikas Publishing House Pvt. Ltd., New Delhi.
9. Singh, Lekhraj & Singh R. (1973). Map work and Practical, Central Book Depot. Allahabad.
10. Singh, R.C., and Dutta (1993). Elements of Practical Geography, Kalyani Publications, New Delhi.
11. Singh, R.L., and Kanaujia L.R.S. (1963). Map Work and Practical Geography, Central Book Depot, Allahabad.
12. Singh, R.L., and Singh, R.P.B. (1997). Elements of Practical Geography, Kalyani Publishers, New Delhi.

**SAVITRIBAI PHULE PUNE UNIVERSITY, PUNE****Choice Based Credit System**

(With effect from June 2020)

**S.Y.B.Sc. Syllabus, Semester-IV****Environmental Geography- II (Paper-I)****Course No: GG-241****No. of Credits: 02****No. of Periods: 30****Objectives:**

- i. To introduce the methods and assessments of the impact on the environment amongst the students.
- ii. To acquaint the students with environmental protection laws, acts, planning, and management.
- iii. To appraise the students with various indigenous environmental conservation measures.
- iv. To make aware the students about various programs and policies carried out in the regional and global scale.

<b>Unit No.</b>	<b>Topic</b>	<b>Sub-Topics</b>	<b>Learning Points</b>	<b>Hours</b>
1.	Environment Impact Assessment	Nature and methods	1. Environment Impact Assessment: Definition, Nature and Scope 2. Methods of Environment Impact Assessment: <ol style="list-style-type: none"> <li>i. Adhoc method (Expert opinions and Expert panel discussion)</li> <li>ii. Predicting the severity of environmental impacts (Delphi methods )</li> </ol> 3. Steps in Environment Impact Assessment	8
2.	Environmental Planning and Management	Principle of Environmental planning, Management and Protection.	1. Environmental planning: Definition, Principles and Concept 2. Aspects and Approaches to environmental management 3. Major environmental laws in India: <ol style="list-style-type: none"> <li>i. Wildlife (Protection) Act -1972</li> <li>ii. Forest (Conservation) Act.1980</li> <li>iii. Environmental Protection Act- 1986</li> </ol>	6

3.	Environmental Conservation in India	Measures of Environmental Conservation	1. Forest conservation 2. Energy conservation 3. Water conservation with respect to Ganga action plan 4. Solid waste management 5. Role of the Government and NGO in environmental conservation	8
4.	Environmental Programme and Policies	Policies in developed and Developing countries	1. The United Nations Environment Programme (UNEP) and initiative: i. Stockholm conference-1972 ii. Earth Summit, Rio de Janeiro-1992 iii. Kyoto Protocol-1997 iv. World Summit on Sustainable Development, Johannesburg-2002 v. Sustainable Development Summit, New York-2015 2. Major Programme for environmental protection and conservation in India: i. Tiger conservation ii. 33 crore tree plantation program in Maharashtra	

**Reference Books:-**

1. Chandna, R. C., (2002). Environmental Geography. Kalyani Publishers, Ludhiana.
2. Cunningham, W. P., and Cunningham, M. A., (2004). Principals of Environmental Science: Inquiry and Applications, Tata McGraw-Hill, New Delhi.
3. Gautam, A., (2007). Environmental Geography, Sharda Pustak Bhawan Allahabad
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6. Huggett, R.J., (1998). Fundamental of Biogeography. Routledge, London.
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8. Kormondy, E. J., (2012). Concepts of Ecology. PHI Learning Pvt. Ltd., New Delhi.
9. Miller, G. T., (2004). Environmental Science: Working with the Earth, 5<sup>th</sup> edition, Thomson/ Brooks Cole, Singapore.
10. Odum, E. P., (2006). Fundamentals of Ecology, 6<sup>th</sup> edition, Cengage Learning India.
11. Saxena, H.M.,(2017). Environmental Geography. 3<sup>rd</sup> edition, Rawat Publication, Jaipur.
12. Sharma, P.D., (2015). Ecology and Environment. Rastogi Publications, Meerut.
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14. Singh, R.B.,(1998). Ecological Techniques and Approaches to Vulnerable Environment. Oxford & IBH Pub, New Delhi.
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(With effect from June 2020)

**S.Y.B.Sc. Syllabus, Semester-IV****Geography of Maharashtra (Human)-II (Paper-II)****Course No: GG-242****No. of Credits: 02****No. of Periods: 30****Objectives:**

- i. To acquaint the students with the relationship between man and environment in Maharashtra State.
- ii. To familiarize the students with the agricultural pattern, problems and prospects in the state.
- iii. To study and understand the industrial sector, spatial distribution, development and problems faced within the state.
- iv. To know the status of transport and communication in Maharashtra state.

<b>Sr. No.</b>	<b>Topic</b>	<b>Sub-Topic</b>	<b>Learning Points</b>	<b>Hour</b>
1.	Population of Maharashtra	Population growth and distribution	<ol style="list-style-type: none"> <li>1. Population growth in Maharashtra.</li> <li>2. Population distribution in Maharashtra</li> <li>3. Spatial distribution of religions in Maharashtra</li> <li>4. Migration in Maharashtra:               <ol style="list-style-type: none"> <li>i. Interstate migration</li> <li>ii. Rural to Urban, Urban to urban migration</li> </ol> </li> </ol>	06
2.	Agriculture in Maharashtra	Types  Problems and Prospects of Agriculture	<ol style="list-style-type: none"> <li>1. Major food crops (Wheat, Rice, Bajra and Jowar) in Maharashtra</li> <li>2. Major cash crops (Cotton, Sugarcane, Grapes and Onion) in Maharashtra</li> <li>3. Problems and Prospects of Agriculture in Maharashtra</li> </ol>	08
3.	Industries in Maharashtra	Types of Industries  Industrial Development in Maharashtra	<ol style="list-style-type: none"> <li>1. Major industries in Maharashtra (Cotton textile, IT industry)</li> <li>2. MIDC and Industrial Development in Maharashtra</li> <li>3. Problems and prospects of Agro-based industries in Maharashtra (Sugarcane and Wine Industry)</li> </ol>	08

4.	Transport and Communication in Maharashtra	1.Transport 2.Communication	A) Transportation in Maharashtra (Road, Railway, Air and Water Transportation) B) Major Transportation Projects in Maharashtra: Express Highway, Samaruddhi Marg and Metro C) Communication in Maharashtra: Print media, Electronic media, Social media, etc.	08
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### Reference Books:-

1. Arunachalam B., (1967), Maharashtra – A study in Physical and Regional Setting, Sheth and Co., Mumbai.
2. Bhamare, S.M., (2013). Geography of Maharashtra, Prashant Publication, Jalgaon.
3. Census Report – 2011, Government of India.
4. Deshpande, C. D.,(1971). Geography of Maharashtra. National Book Trust, New Delhi.
5. Diddee, J., et al. (2002). Geography of Maharashtra, Rawat Publication, Jaipur.
6. Dixit, K.R., (1986). Maharashtra in Maps. Maharashtra State Board for Literature and Culture Mantralaya, Bombay (Mumbai).
7. Government of India: The Gazetteer of India,-1965. Vol. I & II, Publication Division, New Delhi.
8. Hange, A.K., and Waghmare, H.S.(2018). Geography of Maharashtra. Kailas Publications, Aurangabad. (Marathi)
9. Majid Hussain (2014): Geography of India, McGraw Hill Education (India) Private education, New Delhi.
10. Memoria, C. B.,(1986). Geography of India, Shivrul Agrawal & Co., Agra.
11. Negi, B. S. (1998). Economic and Commercial Geography of India, Kedarnath Ramnath Publications, New Delhi.
12. Savadi, A.B., (2020). The Mega State -Maharashtra. Nirali Prakashan, Pune.
13. Sharma, T.C., and Coutinho O. (1998). Economic and Commercial Geography of India. Vikas Publishing House, India.
14. Tirtha, R. (2002): Geography of India, Rawat Publication, Jaipur.

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(With effect from June 2020)

**S.Y.B.Sc. Syllabus, Semester-IV****Surveying – II (Paper-III)****Course No. GG-243 Total no. of Credits: 02 No. of Practicals: 15 (4 Hours each Practical)****Note:**

1. Each practical batch **should not have more than 12 students each.**
2. A separate question paper should be set for each batch.
3. Four hours of one practical should be allotted.

**Objectives:**

- i. To acquaint the students with the principles of surveying, its importance and utility in the Geographical study.
- ii. To familiarize the students with the basic aspects of linear, vertical, and angular measurements of surveying.
- iii. To introduce the importance, basic principles, and uses of GPS in surveying.
- iv. To identify sources and types of errors occurs during surveys.

<b>Sr. No.</b>	<b>Name of the Topic</b>	<b>Learning Points</b>	<b>No. of Practicals 15 (4 Hours/Practical)</b>
1	Dumpy/Auto Level Survey	1. Introduction 2. Structure and function of Dumpy Level / Auto Level with allied instruments 3. Methods of Dumpy Level/Auto Level Survey <ol style="list-style-type: none"> <li>i. Collimation Method</li> <li>ii. Rise and Fall Method</li> </ol> (One field survey of each method) 4. Examples on Collimation Method and Rise and Fall Method (One example each) with Arithmetic Check	<b>05</b>
2	Theodolite Survey	1. Definitions, concepts, and importance of Theodolite survey 2. Components of Theodolite survey, adjustments in theodolite 3. Types of Theodolite and Methods of Theodolite Surveys: Transit and non-transit theodolite Surveying and plotting: intersection method and Tacheometric (One example each)	<b>04</b>

3	Field Survey	1. Dumpy Level/Auto Level survey with plotting and report writing 2. Theodolite survey with plotting and report writing (Per batch one separate field survey for both the surveys)	04
4	Excursion or Village Survey	Visit to any geographically significant location anywhere in the country for all the students together. Or Socio-economic village survey	02

### Reference Books:-

1. Bygott, J. (1955). Map work and Practical Geography. 5<sup>th</sup> Edition, University Tutorial Press, London.
2. Davis, R.E. and Foote, F.S. (1953). Surveying, McGraw-Hill Book Co., New York.
3. Deshpande, G.B. (1991). Surveying, Everest Publishing House, Pune
4. Kanetkar T.P. and Kulkarni S.V. (1983). Surveying and Levelling (Part I and II), Vidyarthi Gruha Prakashan, Pune.
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6. Monkhouse, F.X.J. & Wilkinson, H.R. (1989). Maps & Diagrams, B.I Publications, Bombay.
7. Robinson, A.H. & Sleep, R.D. (1969). Elements of Practical Geography, John Wiley publications, New York.
8. Singh Gopal (1996). Map Work and Practical Geography, Vikas Publishing House Pvt. Ltd., New Delhi.
9. Singh, Lekhraj & Singh R. (1973). Map work and Practical, Central Book Depot. Allahabad.
10. Singh, R.C., and Dutta (1993). Elements of Practical Geography, Kalyani Publications, New Delhi.
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12. Singh, R.L., and Singh, R.P.B. (1997). Elements of Practical Geography, Kalyani Publishers, New Delhi.