PERIYAR UNIVERSITY

PERIYAR PALKALAI NAGAR

SALEM - 11

DEGREE OF MASTER OF SCIENCE

CHOICE BASED CREDIT SYSTEM (CBCS)

SYLLABUS FOR M.SC. GEOGRAPHY

FOR THE STUDENTS ADMITTED FROM THE ACADEMIC YEAR 2021–2022 ONWARDS

BOARD OF STUDIES

1.	**Dr. P. Thangavelu** Assistant Professor and Head Department of Geography A.A.Govt. Arts College Namakkal – 2	Chairman
2.	**Dr. A. Raja** Associate Professor and Head Department of Geography Govt. Arts College (Auto) Salem – 7	Member
3.	**Mrs. S. Bharathi** Assistant Professor Department of Geography J.K.K. Nataraja College of Arts Science Komarapalayam – 638183, Namakkal (Dt)	Member
4.	**Dr. R. Vasanthi** Assistant Professor & Head Department of Geography Sri Vijaya Vidyalaya College of Arts Sciences Nallampalli, Dharmapuri – 636807	Member
5.	**Dr. R. Jegankumar** Associate Professor and Head Department of Geography Bharathidasan University Tiruchirappalli – 620024	University Nominee
6.	**Dr. R. Jaganathan** Professor and Head Department of Geography University of Madras Chepauk, Chennai – 5	Member External
7.	**Thiru. M. Panneer Selvam** Assistant Professor and Head Department of Geography Govt. Arts College (Auto) Coimbatore – 641018	Member External
8.	**Dr.P.Thangaraju** Geo Exploration and Mining Solution (GEMS), 17, Advaitha Ashram Road Fairlands, Salem – 636004	Industrial Personal
9.	**Dr. M. Vijaya Prabhu** UGC Post Doctoral Fellow 1/133, Ayampali Kattu Valavu, Sivasakthi Nagar, Pachanampatti (PO) Omalur (Tk), Salem (Dt) – 636455	Alumni

PERIYAR UNIVERSITY

PERIYAR PALKALAI NAGAR

SALEM – 11

M.Sc., DEGREE COURSE

(Semester System)

FACULTY OF SCIENCE

BRANCH - IV: GEOGRAPHY
(Choice Based Credit System)
(For Periyar University Affiliated Colleges)

REGULATIONS AND SYLLABUS

(with effect from 2021-2022 onwards)

1. Objectives of the Course:

Geography discipline is penetrating in to all spheres of human activities and therefore it is necessary to prepare the students to cope with the advanced developments in various fields of Geography. The objectives of this course are the following:

(a) To impart knowledge in conventional and recent concepts and applications in various areas of Geography.

(b) To train the students in various practical aspect of Geography.

(c) To provide wide choice of elective subjects which are relevant with updated and new areas in various branches of Geography to meet the needs of all students.

2. Eligibility for Admission:

A candidate who has passed B.Sc., Geography / B.Sc., Earth Sciences, Physical Sciences, Chemical Sciences, Biological Sciences and computer applications degree of this University or any of the above degree of any other University accepted by the Syndicate equivalent thereto, subject to such condition as may be prescribed therefore shall be permitted to appear and qualify for the Master of Science (M.Sc.,) Degree

Examination in Geography of this University after a course of study of two academic years.

3. Duration of the Course:

The course of study of Master of Science in Geography shall consist of two academic years divided into four semesters with 92 credits. Each Semester consists of 90 working days.

4. Course of Study:

The courses of study for the degree shall be in Branch - Geography (Choice Based Credit System) with internal assessment according to syllabi prescribed from time to time. The **Internal Assessment** mark for theory is distributed to 3 components viz., **Tests, Seminar** and **Attendance** as **10**, **10** and **05** marks, respectively. For practical, it is distributed to **Record Work, Tests,** and **Attendance** as **25**, **10** and **05** marks respectively.

Total Number of Marks : **2200**
For Each Paper : **100** (Int. 25 + Ext. 75)
Project : **200** (Internal Valuation 75 +
External Valuation 75
Joint Viva Voce 25 + 25)

5. M.Sc. GEOGRAPHY – COURSE STRUCTURE UNDER CBCS

(Applicable to the candidates admitted from the academic year 2021-2022**)**

Semester	Paper Code	Course	Course Title	Inst Hours/ Week	Credit	Marks		Total
						Int	Ext	
I		Core - I	Geomorphology	6	5	25	75	100
		Core – II	Population Geography	6	5	25	75	100
		Core - III	Environmental Studies	6	5	25	75	100
		Elective - I	**Select Any One** Agricultural Geography Medical Geography	5	4	25	75	100
		Core - IV	***Practical – I**: Terrain and Climatic Data Analysis	4	4	40	60	100
	Total			**27**	**23**	**-**	**-**	**500**
* Examination at the End of Second Semester								
II		Core - V	Geography of Economic Activities	6	5	25	75	100
		Core - VI	Climatology	6	5	25	75	100
		Core - VII	Urban Geography	6	5	25	75	100
		Elective - II	**Select Any One** Oceanography Political Geography	5	4	25	75	100

		EDC - I	Course selected from other Department	2	2	25	75	100
		-	Human Rights	1	2	25	75	100
		Core - VIII	**Practical – II**: Statistical and Computer Applications in Geography	4	4	40	60	100
	Total			**30**	**27**	**-**	**-**	**700**
III		Core - IX	Principles of Cartography	6	5	25	75	100
		Core – X	Concepts and Trends in Geography	6	5	25	75	100
		Elective - III	**Select Any One** Disaster and Management Studies Regional Planning	5	4	25	75	100
		Core - XI	***Practical – III**: Thematic Cartography	4	4	40	60	100
		Add-on Course (Internship)	Field Visit/Industrial Visit (Internship Course)	-	-	-	-	-
	Total			**21**	**18**	**-**	**-**	**400**
* Examination at the End of Fourth Semester								
IV		Core - XII	Geography of India	6	5	25	75	100
		Core - XIII	Principles of Remote Sensing and GIS	6	5	25	75	100
		Elective - IV	**Select Any One** Geography of Travel and Tourism Transport Geography	5	4	25	75	100
		Core - XIV	**Practical – IV**: GIS and Remote Sensing Applications	4	4	40	60	100
		Core - XV	Project/ Viva-voce	6	4	50	150	200
	Total			**27**	**22**	**-**	**-**	**600**
Grand Total				**105**	**92**	**-**	**-**	**2200**

List of Elective Courses: Select Any One from each Semester

Semester	Course	Paper Code	Elective Course Title
I	I		Agricultural Geography
	II		Medical Geography
II	I		Oceanography
	II		Political Geography
III	I		Disaster and Management Studies
	II		Regional Planning
IV	I		Geography of Travel and Tourism
	II		Transport Geography

List of Extra Disciplinary Course (To be selected by Other Department Students)

S.No.	Paper Code	Extra Disciplinary Course Title
1		Geography of India
2		Regional Geography of Tamil Nadu

6. Examinations:

The examination shall be of **three hours** duration for each paper at the end of each semester. The candidate failing in any subject(s) will be

permitted to appear for each failed subject(s) in the subsequent examination.

Practical examinations for PG course should be conducted at the end of the even semester only.

At the end of fourth semester viva-voce will be conducted on the basis of the Project report by one internal and one external examiner.

7. Question Paper Pattern:

Question Paper Pattern for Theory Examination

Time: Three Hours **Maximum Marks:** 75

Part – A (15 X 1 = 15 Marks)

Answer **ALL** Questions

Part – B (2 X 5 = 10 Marks)

Answer **ANY TWO** Questions out of **Five**

Part – C (5 X 10 = 50 Marks)

Answer **ALL** Questions

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Question Paper Pattern for Practical Examination

Time: 3 Hours **Maximum Marks**: **100** (Internal: 40 + External: 60)

Practical Examination: **60** Marks (Exam: 50 Marks, Record: 10 Marks)
Passing Minimum: **30** Marks (Aggregate of examination and Record)
(No passing minimum for records)

There will be one question with or without subsections to be asked for the practical examination. Every question should be chosen from the question bank prepared by the examiner(s). Every fourth student gets a new question i.e. each question may be used for at most three students.

8. Project:

(a) Topic:

The topic of the project shall be assigned to the candidate before the beginning of third semester and a copy of the same should be submitted to the University for approval.

(b) No. of Copies of the Project Report:

The students should prepare **three** copies of project report and submit the same for the evaluation by Examiners. After evaluation one copy is to be retained in the college library and one copy is to be submitted to the university (Registrar) and one copy can be held by the student.

Format to be followed:

The formats / certificate for project to be submitted by the students is given below:

Format for the preparation of project work:

a) Title Page
b) Bonafide Certificate
c) Acknowledgement
d) Table of Contents
e) List of Tables
f) List of Figures

Contents

Chapter No.	Title	Page No.
1.	Introduction	
2.	Review of Literature	
3.	Aim and Objectives	
4.	Methodology	
5.	Results and Discussion	
6.	Summary and Conclusion	
7	References	

Format of the Title page:

TITLE OF THE PROJECT

Project Submitted in partial fulfillment of the requirement for the award of the Degree of Master of Science in

GEOGRAPHY

(Under Choice Based Credit System)

To the Periyar University, Periyar Palkalai Nagar, Salem -636 011

By

Student's Name :

Register Number :

College :

Year :

Format of the Certificate:

CERTIFICATE

This is to certify that the project entitled .....submitted in partial fulfillment of the requirement of the award of the Degree of Master of Science in **GEOGRAPHY (Under Choice Based Credit System)** to the Periyar University, Salem is a record of bonafide research work carried out by.....under my supervision and guidance and that no part of the project has been submitted for the award of any degree, diploma, fellowship or other similar titles or prizes and that the work has not been published in part or full in any scientific or popular journals or magazines

Date: Signature of the Guide

Place:

Signature of the Head of the Department

Guidelines for approval of PG Guides for guiding students in their research for submitting project:

A person seeking for recognition as guide should have:

(a) A Ph.D. Degree or M.Phil / M.A. / M.Sc. Degree with first class / second class and

(b) Should have 3 years of teaching / research experiences.

9. Passing Minimum:

The candidate shall be declared to have passed the examination if the candidate secures not less than 50% marks in both the **University Examinations** and **Internal Assessment** in each paper.

For the Practical paper, a minimum of 50 marks out of 100 marks in the University examination and the record notebook taken together is necessary for a pass. There is no passing minimum for the record notebook. However submission of record notebook is a must.

For the Project work and viva-voce a candidate should secure 50% of the marks for pass. The candidate should attend viva-voce examination to secure a pass in that paper.

Candidate who does not obtain the required minimum marks for a pass in a Paper / Practical / Project Report shall be required to appear and pass the same at a subsequent appearance.

10. Classification of Successful Candidates:

Candidates who secure not less than 60% of the aggregate marks in the whole examination shall be declared to have passed the examination in **First Class.**

All other successful candidate shall be declared to have passed in the **Second Class.**

Candidates who obtain 75%of the marks in the aggregate shall be deemed to have passed the examination in the **First Class with Distinction** provided they pass all the examinations prescribed for the course at the first appearance.

Candidates who pass all the examinations prescribed for the course in the first instance and within a period of two academic years from the year of admission to the course only are eligible for **University Ranking.**

11. Maximum Duration for the Completion of the PG Programme:

The maximum duration for completion of the PG Programme shall not exceed eight semesters.

12. Commencement of this Regulation:

These regulations shall take effect from the academic year 2021-2022, that is, for students who are admitted to the first year of the course during the academic year 2021-2022 and thereafter.

13. Transitory Provision:

Candidates who were admitted to the PG course of study before 2021-2022 shall be permitted to appear for the examinations under those regulations for a period of three years, that is, up to end inclusive of the examination of April / May 2021. Thereafter, they will be permitted to appear for the examination only under the regulations then in force.

Semester I

Core – I – GEOMORPHOLOGY

Paper Code: 21PGG01 **Credits: 5**

Unit I: Nature, Scope and Development – Basic Concepts in Geomorphology- Endogenic processes – Fold, Fault, Earthquake, Volcanoes – Continental Drift – Plate Tectonics.

Unit II: Exogenic Processes – Weathering – Mass movement – Soils – Concept of Landform evolution – Davisian – Dynamic Equilibrium concept.

Unit III: Arid Cycle – Slopes – Basic characteristics – Ideas of Wood – Concept of Slope Decline, Slope Replacement and Parallel Retreat of Slopes.

Unit IV: Fluvial landforms - Aeolian landforms – Karst landforms – Glacial landforms – Coastal landforms – Classification of coasts.

Unit V: Ice Ages – Climatic Geomorphology – Applied Geomorphology with reference to engineering, mineral exploration and hydrological studies.

Reference Books:

1. Small, R.J. (1970). *Study of Landforms: A Textbook of Geomorphology*. Cambridge University Press, Cambridge.
2. Dayal, P. (1996). *A Textbook of Geomorphology (2nd Edition)*. Shukla Book Depot, Patna.
3. Chorley, R.J., Schumm, S.A. and Sugden, D.E. (1984). *Geomorphology*. Methuen Publications, London.
4. Thornbury, W.D. (1969). *Principles of Geomorphology*. John Wiley and Sons, New York.
5. Pitty, A.F. (1974). *Introduction to Geomorphology*. Methuen Publication, London.
6. Singh, S., (1998): *Geomorphology*, Prayag Pustakalay, Allahabad.
7. Sparks, B.W. (1960). *Geomorphology*. Longmans, London.

Semester I

Core – II – POPULATION GEOGRAPHY

Paper Code: 21PGG02 **Credits: 5**

Unit I: Nature, Scope and Significance of Population Geography – Sources of Population data – Reliability of population data – World population distribution – Factors affecting distribution.

Unit II: Dynamics of Population – Fertility – Measures and determinants of Fertility - World trend – Mortality – Measures and determinants of Mortality – World population – Growth and its trend.

Unit III: Theories of population growth – Malthus – Demographic Transition – Migration - Types – Determinants – Major causes and consequences of migration.

Unit IV: Population composition – Sex composition – Gender – Age structure – Problems of the aged – Literacy – Determinants and world pattern of literacy.

Unit V: Occupational composition of population – Determinants and world pattern – Urbanization – Population and resources – Optimum population, over population and under population – population problems.

Reference Books:

1. Clarke, J.I. (1984). *Geography and Population: Approach and Applications*. Pergamon Press Ltd., Oxford.
2. Trewartha, G.T. (1969). *A Geography of Population: World Patterns*. John Wiley & Sons Inc, New York.
3. Clarke, J.I. (1984). *Geography and Population: Approaches and Applications*. Pergamon Press, London.
4. Bogue, D.J. (1969). *Principle of Demography*. John Wiley & Sons Inc, New York.
5. Demko, G.J., Rose, H.M. and Schnell, G.A. (1970). *Population Geography: A Reader*. McGraw Hill Book Company, New York.
6. Wilson, M.G.A. (1968). *Population Geography*. Thomas Nelson, London.

Semester I

Core – III – ENVIRONMENTAL STUDIES

Paper Code: 21PGG03 **Credits: 5**

Unit I: Nature and scope of Environmental Studies – Role of Geography – Man and environment relationship.

Unit II: Concept of Ecosystem – Structure – Functioning of the ecosystem – Food chain, food web and food pyramid – Nutrient cycles – Natural disruptions of the ecosystem – Floods and Drought.

Unit III: Human interference of the ecosystem – Population growth and its impact – Man's impact on the biosphere – Agriculture – Green Revolution – HYV and pesticides – Man's impact on land – Mining – Soils – Coastal areas.

Unit IV: Human settlements and environment – Industrial environment – Emerging environmental problems – Urban environment – Pollution – Environmental and health – Environmental degradation.

Unit V: Eco crisis – Environmental quality – Environmental management and planning – Environmental Impact Assessment – Conservation movements – Need for interdisciplinary approach.

Reference Books:

1. Cunningham, W.P. and Cunningham, M.N. (2004). *Principles of Environmental Science: Inquiry and Application*. Tata McGraw Hill Publishing Company, Ltd., New Delhi.
2. Joseph, K and Nagendran, R. (2004). *Essentials of Environmental Studies*. Pearson Education, Delhi.
3. Radha, S. and Dankhyan, A.S. (2002). *Environmental Challenges of the 21st Century*. Deep and Deep Publications Pvt. Ltd., New Delhi.
4. Saxena, H.M. (2004). *Environmental Geography (2nd Edition)*. Rawat Publications, Jaipur.
5. Singh, S. (1991). *Environmental Geography*. Prayag Pustak Bhawan, Allahabad.
6. Wathern, P. (1995). *Environmental Impact Assessment: Theory and Practice*. Routledge, London.
7. Strahler, A.H. and Strahler, A.N. (1977). *Geography and Man's Environment*. Wiley, Cambridge.

Semester I

ELECTIVE – I – AGRICULTURAL GEOGRAPHY

Paper Code: 21PGGE01 **Credits: 4**

Unit I: Nature scope and significance of Agricultural Geography – Approaches to the study of Agricultural geography – Elements of agriculture.

Unit II: Determinants of agricultural land use – Physical, economic, social, institutional and technological determinants.

Unit III: Von Thunen's theory of agricultural location and its recent modifications – Land use – Types – Land use surveys – Land capability classification.

Unit IV: Agricultural productivity – Factors affecting productivity – Measurement of agricultural productivity – Crop combination – Delimitation of crop combination regions – Weaver – Crop diversification regions.

Unit V: Agricultural regions of the world – A review of Whittlessey's agricultural classification – Agricultural regions of India – Characteristics – Agricultural Problems.

Reference Books:

1. Basu, D.N., and Guha, G.S., (1996). *Agro-Climatic Regional Planning in India* (Vol. I & II). Concept Publication, New Delhi.
2. Grigg, D.B. (1984). *Introduction to Agricultural Geography.* Hutchinson, London.
3. Shafi, M., (2006). *Agricultural Geography.* Doring Kindersley India Pvt. Ltd., New Delhi.
4. Singh, J. and Dhillon, S.S. (1984). *Agricultural Geography*. Tata McGraw Hill, New Delhi.
5. Hussain, M. (1979). *Agricultural Geography*. Inter India Publications, New Delhi.
6. Morgan, W.B. and Munton, R.J.C. (1971). *Agricultural Geography*. Methuen & Co., London.
7. Singh, J. and Dhillon, S.S. (1995). *Agricultural Geography*. Tata McGraw Hill Pub. Company Ltd., New Delhi.

Semester I

ELECTIVE – I – MEDICAL GEOGRAPHY

Paper Code: 21PGGE02 **Credits: 4**

Unit I: Nature, Scope and Development of Medical Geography – Concept of Health and Diseases – Climate and Health – Human Diseases – Classification – Infectious, Degenerative and Chronic, Inherited and Genetic Diseases.

Unit II: Geographical Perspectives of Communicable and Non-Communicable Diseases – Epidemic, Endemic and Pandemic Nature of Diseases – Major Tropical Diseases – Malaria, Filariasis and Leprosy – Cancer and Heart attack – Social Diseases – HIV/AIDS, STD - Sexually Transmitted Disease.

Unit III: Disease Ecology – Determinants of Diseases – Interplay of Environmental, Cultural, Socio-Economic and Ecological Factors – Gender and Health – Disease Diffusion – Concepts – Dynamics of Major Diseases – Migration and Disease – Travel Medicine.

Unit IV: Medical Cartography – Measurement Techniques of Diseases – Disease Mapping Techniques at Macro, Meso and Micro levels – Medical Statistics – Measurement of Morbidity and Mortality.

Unit V: Health Care Delivery System – Hierarchy of Medical Services – Planning for Manpower, Infrastructure and Service Facilities of Health Care – Rural and Urban Disparities – Health Education – GIS in Public Health Surveillance and Monitoring.

Reference Books:

1. Park, K. (2019). *Textbook of Social and Preventive Medicine*. Banarsidas Bhanot Publishers, Jabalpur.
2. Husain, A. (2007*). Geography and Health*. Mahaveer & Sons, New Delhi.
3. Misra, R.P. (2007*). Geography of Health: A Treatise on Geography of Life and Death in India*. Concept Publishing Company, New Delhi.
4. Singh, S. and Misra, P.D. (2000). *Health and Diseases: Dynamics and Dimensions*. New Royal Book Company, Lucknow.
5. Kulkarni, A.P., Baride, J.P., Doke, P.P. and Mulay, P.Y. (2013). *Text Book of Community Medicine (4th Edition)*. Vora Medical Publications, Mumbai.
6. Pacione, M. (1986). *Medical Geography: Progress and Prospects (Progress in Geography Series)*. Routledge Publications, London.
7. Akthar, A. and Learmonth, A. (1985). *Geographical Aspects of Health and Disease in India*. Concept Publishing Company, New Delhi.

Semester I

Core – IV – Practical – I - TERRAIN AND CLIMATIC DATA ANALYSIS

Paper Code: 21PGGP01 **Credits: 4**

Unit I: Drawing Profiles

- 1.1 Serial Profile
- 1.2 Superimposed Profile
- 1.3 Projected Profile
- 1.4 Composite Profile
- 1.5 Longitudinal Profile

Unit II: Slope Analysis

- 2.1 Wentworth method
- 2.2 Smith Relative relief method
- 2.3 Altimetric Frequency Curve
- 2.4 Hypsographic Curve.

Unit III: Morphometric Analysis

- 3.1 Stream Ordering
- 3.2 Bifurcation ratio
- 3.3 Stream Length Ratio
- 3.4 Miller's Drainage Shape Calculating Method

Unit IV: Climatic Data Analysis – I (Temperature & Rainfall)

- 4.1 Foster's Climograph
- 4.2 Climatograph
- 4.3 Rainfall Dispersion Diagram

Unit V: Climatic Data Analysis – II (Wind and Cyclone)

- 5.1 Simple Wind-Rose Diagram
- 5.2 Octagonal Wind-Rose Diagram
- 5.3 Cyclone Track

Reference Books:

1. Robinson, A.H. (1978). *Elements of Cartography*. John Wiley & Sons Inc., New York.
2. Monkhouse, F.J. and Wilkinson, H.R. (1971). *Maps and Diagrams (3rd Edition)*. Methuen & Co., London.
3. Khullar, D.R. (2004). *Essentials of Practical Geography*. New Academic Publishing Co., Jalandhar.
4. Misra, R.P. and Ramesh, A. (1989). *Fundamentals of Cartography*. Concept Publishing Company, New Delhi.
5. Negi, B.S. (1998). *Practical Geography*. Kedarnath and Ramnath, Meerut.
6. Saha, P. and Basu, P. (2013). *Advanced Practical Geography*. Kolkata Books and Allied Publisher, Kolkata.

Semester II

Core – V – GEOGRAPHY OF ECONOMIC ACTIVITIES

Paper Code: 21PGG04 **Credits: 5**

Unit I: Introduction to Geography of Economic Activities – Nature, scope and Significance – Approaches – Dynamism of Economic Activities.

Unit II: World agriculture – Factors affecting agriculture – types – Distribution, production and trade of wheat, rice, maize, sugarcane, cotton, tea and rubber – Forestry – Fishing – Grazing and pastoralism.

Unit III: Economic significance of minerals – Distribution and production of iron ore, manganese, bauxite, copper, gold and mica – Fuel resources: Coal – Petroleum and Nuclear minerals.

Unit IV: Manufacturing industries – Major inputs – Locational factors – Distribution of iron and steel, textiles (cotton and woollen) – Ship-building and Automobile industries – Major industrial regions of the world.

Unit V: Transportation: Land, water and air – Major sea routes of the world – Trade – Factors influencing trade – Technological revolution and trade – Major trade blocs of the world – EU – OPEC – ASEAN – WTO.

Reference Books:

1. Wheeler, J.O. and Muller, P.O. (1998). *Economic Geography*. John Wiley and Sons, New York.
2. Khanna, K.K. and Gupta, V.K. (1998). *Economic and Commercial Geography*. Sultan Chand and Sons, New Delhi.
3. Morgan, W.B. and Munton, R.J.C. (1971). *Agricultural Geography*. Methuen & Co., London.
4. Hussain, M. (1979). *Agricultural Geography*. Inter India Publications, New Delhi.
5. Smith, D.M. (1971). *Industrial Location*. John Wiley and Sons, New York.
6. Royen, W.V. and Bengtson, N.A. (1935). *Fundamentals of Economic Geography*. Prentice Hall Inc, New York.
7. Thoman, R.S., Conkling, E.C., and Yeates, M.H. (1968). *Geography of Economic Activity*. McGraw Hill Book Company, New York.

Semester II

Core – VI – CLIMATOLOGY

Paper Code: 21PGG05 **Credits: 5**

Unit I: Structure and Composition of the Atmosphere – Insolation – Heat balance – Temperature – Factors controlling temperature distribution – Greenhouse gases.

Unit II: Atmospheric pressure – Pressure belts – Horizontal and vertical distribution of pressure Wind systems – General circulation – Planetary winds – Seasonal and Local winds – Jet stream.

Unit III: Humidity – Evaporation – Condensation – Forms – Clouds – Precipitation – Types and Distribution.

Unit IV: Air masses – Classification – Fronts – Atmospheric disturbances – Tropical and Temperate cyclones.

Unit V: Koppen and Thornthwaite climatic classification – Weather forecast and weather satellites – recent trends – Climatic regions of world.

Reference Books:

1. Lal, D.S., (1989). *Climatology*. Chaitanya Publisher's House, Allahabad.
2. Critchfield, H., (1975). *General Climatology*. Prentice-Hall, New York.
3. Das, P.K. (1968). *The Monsoons*. National Book Trust, New Delhi.
4. Mather, J.R. (1974). *Climatology: Fundamentals and Applications*. McGraw-Hill, New York.
5. Patterson, S. (1969). *Introduction of Meteorology*. McGraw-Hill Book Company, London.
6. Stringer, E.T. (1982). *Foundation of Climatology*. Surjeet Publications, New Delhi.
7. Trewartha, G.T. (1968). *An Introduction to Climate (4th Edition).* McGraw-Hill Book Kogakushu Ltd., New York.
8. Oliver, J.E. and Hidore, J.J. (2002). *Climatology: An Atmospheric Science*. Pearson Education, New Delhi.
9. Miller, A.A. (2001). *Climatology*. Dutton Publications, Boston.

Semester II

Core – VII – URBAN GEOGRAPHY

Paper Code: 21PGG06 **Credits: 5**

Unit I: Nature, scope and development of urban geography – Urbanization – Factors affecting urban growth – World urbanization – Urbanization in Developing countries – Urbanization in India.

Unit II: Demographic structure of cities – Age and sex structure – Population density distribution – Models – Occupational structure – Urban land use – Types Central business district – Delimitation – Residential land use – Types – Central business district – Delimitation – Residential land use – Urban land use change.

Unit III: Urban land use models – Burgess – Hoyt – Harris and Ullman – Urban ecology – Social Area analysis – Factorial ecology – Economic Base and functional organization of the city – Basic and Non basic concept – Functional classification of the city.

Unit IV: Urban expansion – Vertical – Urban renewal – Horizontal – Urban sprawl – Rural – Urban Fringe – Suburbs – Growth and characteristics – City region and Umland demarcation.

Unit V: Urban hierarchy – Rank size rule – Central Place theory – Urban Problems: Slums, Transport, Solid Waste Management, Drinking Water Supply and Pollution – Urban Planning – Smart Cities in India.

Reference Books:

1. Carter, H. (2002). *The Study of Urban Geography*. Arnold Heinemann, London.
2. Fyfe, N.R. and Kenny, J.T. (2005): *The Urban Geography Reader*, Routledge, London.
3. Johnson, J.H. (1972). *Urban Geography: An Introductory Analysis*. Pergamon Press, Oxford.
4. Mayer, H.M. and Kohn, C.F. (1967). *Readings in Urban Geography*. Central Book Depot, Allahabad.
5. Hall, T. (2006): *Urban Geography*, Routledge, London.
6. Kaplan, D.H., Wheeler, J.O. and Holloway, S.R. (2008). *Urban Geography*, John Wiley and Sons, New York.
7. Pacione M. (2009). *Urban Geography: A Global Perspective*, Taylor and Francis, New York.

Semester II

ELECTIVE – II – OCEANOGRAPHY

Paper Code: 21PGGE03 **Credits: 4**

Unit I: Scope, Content, Significance, Distribution of Land and Sea – Hypsometric Curve, Surface Configuration of the Ocean Floor: Continental Shelf, Continental Slope, Deep Sea Plain, Oceanic Deeps and Submarine Canyons.

Unit II: Atlantic, Pacific and Indian Ocean – Horizontal and Vertical Distribution of Seawater Temperature, Salinity: Factors affecting Salinity and Distribution.

Unit III: Factors Influencing Ocean Circulation – General Circulation of Ocean Currents, Currents of the Atlantic, Pacific and Indian Ocean, Waves and Tides: Definition and Types, Tsunamis: Origin and Effects.

Unit IV: Coral Reefs: Classification and Distribution – Coral Reefs types - Conditions for the Growth.

Unit V: Ocean Deposits: Types – Distribution– Tidal Energy.

Reference Books:

1. Anikouchine, W.A. and Sternberg, R.W. (1973). *The World Oceans - An Introduction to Oceanography*. Prentice-Hall, Englewood Cliffs, New Jersey.
2. Garrison, T. (1998). *Oceanography: An Invitation to Marine Science (3rd Edition).* Wadsworth Publishing Company, Belmont, California.
3. Gerald, S. (1980). *General Oceanography: An Introduction*. John Wiley & Sons, New York.
4. King, C.A.M. (1972). *Beaches and Coasts*. Edward Arnold, London.
5. King, C.A.M. (1975). *Oceanography for Geographers*. Edward Arnold, London.
6. Ramasamy, G. (1970). *Oceanography (Tamil Edition)*. Tamil Nadu Text Book Society, Chennai.
7. Sharma, R.C. and Vatal, M. (1970). *Oceanography for Geographers*. Chaitanya Publishing House, Allahabad.
8. Shepard, F.P. (1948). *Submarine Geology*. Harper & Sons, New York.

Semester II

ELECTIVE – II – POLITICAL GEOGRAPHY

Paper Code: 21PGGE04 **Credits: 4**

Unit I: Political Geography - Nature and Scope – Contemporary Traditions in Political Geography – Approaches to Study – Its Relation to other Social Science Disciplines.

Unit II: Nation - Concept – Characteristics – Elements of Nation Building – Nationalism; State: Concept – Characteristics – Types ; Land Locked – Littoral – Island States

Unit III: Frontiers and Boundaries: Evolution and Classification – Core Areas and Capitals, Centre – Periphery Relations

Unit IV: Global Strategic Views; Heartland and Rim Land Theories – Indian Ocean Politics – International Relations – Multinational Organizations: Political, Economic and Cultural Blocks

Unit V: Political Geography of India: Federalism - State Reorganization after Independence – Emergence of New States – India's Border Problems – Inter State Disputes with Tamil Nadu.

Reference Books:

1. Alexander, L.M. (1964). *World Political Patterns (2nd Edition)*. John-Murray, London.
2. Dikshit, R.D. (1982). *Political Geography: A Contemporary Perspective*. Macmillan Company of India, New Delhi.
3. Dikshit, R.D. (2020). *Political Geography: Politics of Place and Spatiality of Politics*. Macmillan Company of India, New Delhi.
4. Dwivedi, R.L. and Misra, H.N. (2019). *Fundamentals of Political Geography*. Surjeet Publications, Delhi.
5. Valkenburg, S.V. (1957). *Elements of Political Geography (Prentice-Hall Geography Series)*, Prentice-Hall, Inc., New York.

Semester II

EDC: GEOGRAPHY OF INDIA

Paper Code: 21PGGEDC1 **Credits: 4**

Unit I: Location and Administrative Units – Physiographic divisions – Climate – Climatic types – Soils and Natural Vegetation.

Unit II: Agriculture – Salient features – Factors affecting, agriculture in India – Major crops – Rice, wheat, cotton, jute, tea, coffee, sugarcane and tobacco only – Irrigation and types – Multipurpose projects.

Unit III: Power resources: Hydel, thermal and nuclear – Mineral resources: Iron ore, manganese, bauxite and mica only – Fuel minerals: Coal and Petroleum – Major industries: Iron and steel, Cotton textile, Cement, Sugar and Jute industries.

Unit IV: Transport and communication: Road, Railways and Water transport – Inland waterways – Ports – Air transport.

Unit V: Population: Growth and Distribution of Population –Migration and Urbanization in India.

Reference Books:

1. Singh, G. (1976). *A Geography of India*. Atma Ram & Sons Pub., New Delhi.
2. Siddhartha, K. and Mukherjee, S. (2013). *Geography through Maps (11th Edition)*. Kisalaya Publications Pvt. Ltd., New Delhi.
3. Husain, M. (2014). *Geography of India (5th Edition)*. McGraw Hill Education, New Delhi.
4. Sharma, T.C. and Coutinho, O. (1978). *Economic and Commercial Geography India (2nd Edition)*. Vikas Publishing House Pvt. Ltd., New Delhi.
5. Mamoria, C.B. (1980). *Economic and Commercial Geography of India*. Shiva Lal Agarwala & Company, Agra.
6. Dubey, R.N. and Negi, B.S. (1968). *Economic and Commercial Geography of India*. Kitabmahal, Allahabad.
7. Tiwari, R.C. (2010). *Geography of India*. Prayag Pustak Bhawan, Allahabad.
8. Spate, O.H.K. and Learmonth, A.T.A. (1967). *India and Pakistan: A General and Regional Geography*. Methuen Publications, London.

Semester II

EDC: REGIONAL GEOGRAPHY OF TAMIL NADU

Paper Code: 21PGGEDC2 **Credits: 4**

Unit I: Location and administrative units – Physiographic divisions – Climate – Rainfall – Climatic types – Soils – Natural Vegetation.

Unit II: Agriculture – Salient features – Major crops – Rice, cotton, tea, coffee and sugarcane – Irrigation and types.

Unit III: Power resources: Hydel, thermal and nuclear – Mineral resources – Iron ore, manganese and bauxite – Fuel minerals – Coal and Petroleum – Major industries – Iron and steel, Cotton textile, Cement and Sugar industries.

Unit IV: Transport and communication – Road, Railways – Ports – Air transport – Exports and Imports.

Unit V: Growth and Distribution of Population – Population migration, Urbanisation in Tamil Nadu.

Reference Books:

1. Spate, O.H.K. and Learmonth, A.T.A. (1967). *India and Pakistan: A General and Regional Geography*. Methuen Publications, London.
2. Stamp, L.D. (1967). *Asia: A Regional and Economic Geography*. B.I. Publication Ltd., New Delhi.
3. Shafi, M. (2000). *Geography of South Asia*. MacMillan and Co., Kolkata.
4. *Statistical Hand Book of Tamil Nadu* (2004). Department of Economics and Statistics, Government of Tamil Nadu, Chennai.
5. *Tamil Nadu – An Economic Appraisal 2011-12 to 2013-14* (2014). Department of Evaluation and Applied Research, Chennai.
6. *Season and Crop Report of Tamil Nadu for the Agricultural Year 2003-2004* (2004). Department of Economics and Statistics, Chennai.

Semester II

Core – VIII – Practical - II

STATISTICAL AND COMPUTER APPLICATIONS IN GEOGRAPHY

Paper Code: 21PGGP02 **Credits: 4**

Unit I: Introduction to Basics of Computers

1.1 Microsoft-Word-Power point Presentation – Excel Graphics

Unit II: Data Collection

2.1 Sources of Data
2.2 Primary, Secondary and Spatial Data
2.3 Pilot study
2.4 Sampling methods
2.5 Sampling error

Unit III: Data Processing and Representation

3.1 Frequency distributions and diagrammatic representation
3.2 Histogram
3.3 Frequency curve
3.4 Polygon

Unit IV: Measures of Central tendency

4.1 Mean, Median and Mode

Measures of dispersion

4.2 Mean deviation
4.3 Quartile deviation
4.4 Standard Deviation
4.5 Coefficient of Variations

Unit V: Correlation Techniques

5.1 Pearson's Product Moment Correlation
5.2 Spearman Rank Correlation

Regression Analysis in Geography

5.3 Residual Mapping
5.4 Factor Analysis

Reference Books:

1. Elliott, A.C. and Woodward, W.A. (2007). Statistical Analysis Quick Reference Guidebook: With SPSS Examples. Sage Publications Pvt. Ltd., New York.
2. Singh, S.N. and Yadava, K.N.S. (1981). *Statistics* for Geographers and *Social Scientists (*Eds: Mandal). Concept Publishing Co., New Delhi.
3. Gregory, S. (1964). *Statistical Methods and the Geographer*, Longmans, London.
4. Lewis, P. (1972). *Maps and Statistics*. Methuen and Company Ltd., London.
5. King, L.J. (1969). *Statistical Analysis in Geography*. Prentice Hall Inc., New Jersey.

Semester III

Core – IX – PRINCIPLES OF CARTOGRAPHY

Paper Code: 21PGG07 **Credits: 5**

Unit I: Meaning and Nature of Cartography – Cartography as a Science – Historical development – Maps – Types of maps – Compilation and generalization of maps.

Unit II: Map design and layout – Lettering and toponomy – Tools and techniques for map drawing – Map construction and reproduction – Photographic and Printing – Photostat – Contact prints – Electronic stencil cutters.

Unit III: Symbolizing and processing data – Statistical data base – Use of symbols on maps: Point, line, area and volume symbols – Qualitative and Quantitative maps.

Unit IV: Mapping the geologic structure, relief and terrain data – Mapping the climatological and hydrological data – Mapping the socio-economic data.

Unit V: Map Projections – Fundamentals – Classification – Major types of map projections – Characteristics and uses – Choice of Projections – Recent development in Cartography – Computer Cartograpghy – Digital Cartography.

Reference Books:

1. Misra, R.P. and Ramesh, A. (1989). *Fundamentals of Cartography*. Concept Publishing Company, New Delhi.
2. Monkhouse, F.J. and Wilkinson, H.R. (1971). *Maps and Diagrams (3rd Edition)*. Methuen & Co., London.
3. Robinson, H. (1995). *Elements of Cartography (6th Edition)*. John Wiley & Sons, New York.
4. Keates, J.S. (1989). *Cartographic Design and Production (2nd Edition)*. Longman Scientific and Technical, Essex.
5. Raize, E. (1982). *Principles of Cartography*. McGraw Hill Publicatins, New York.
6. Saha, P. and Basu, P. (2013). *Advanced Practical Geography*. Kolkata Books and Allied Publisher, Kolkata.

Semester III

Core – X – CONCEPTS AND TRENDS IN GEOGRAPHY

Paper Code: 21PGG08 **Credits: 5**

Unit I: Geographical thought: Greeks, Romans, Arabs, German, French, British, America, Australia and Indian Geographical Thought.

Unit II: Traditions in Geography – Man – Land, Area Studies, Spatial and Earth Science Traditions – Dualism and Dichotomy – Systematic and Regional, Deterministic and Possibilistic, Physical and Human, Ideographic and Nomothetic, Qualitative and Quantitative.

Unit III: Explanations in Geography – Models and Theories in Geography.

Unit IV: Recent trends in Geographic Studies – Resource Management – Environmental Impact Assessment – Risk Analysis – Human Rights and Conflict Resolution.

Unit V: New Techniques in Geography – Spatial Information Technology – Remote Sensing – GIS – GPS.

Reference Books:

1. Peet, R. (1998). *Modern Geographical Thought*. Wiley-Blackwell Publishers, New Jersey.
2. Hussain, M. (2002). *Evolution of Geographical Thought*. Rawat Publication, Jaipur.
3. Harvey, M.E. and Plly, B.P. (2002). *Themes in Geographic Thought*. Rawat Publications, Jaipur.
4. Husian, M. (2011). *Human Geography*. Rawat Publication, New Delhi.
5. Leong, G.C. and Morgan, G.C. (1982*). Human and Economic Geography*. Oxford University Press, London.
6. Haggett, P. (1979). *Geography: A Modern Synthesis (3rd Edition)*. Harper and Row Publishers, New York.
7. Dikshit, R.D. (1997). *Geographical Thought: A Contextual History of Ideas*. Prentice-Hall India Pvt. Ltd., New Delhi.

Semester III

ELECTIVE – III – DISASTER AND MANAGEMENT STUDIES

Paper Code: 21PGGE05 **Credits: 4**

Unit I: Basic concepts of disaster – types of disasters – Natural forces and Life – Increasing importance of disasters.

Unit II: Earthquakes – Volcanism – Landslides – Tsunami – Cyclone – Flood – Drought, Casual factors, Impact Assessment.

Unit III: Hazardous Wastes – Radioactivity – Toxicity – Nuclear War, Biological Weapons – Landmines. Pollution: Water – Land – Air – Noise pollution.

Unit IV: Disaster Preparedness and Mitigation – Managing natural and anthropogenic disasters – Risk assessment and analysis.

Unit V: Management and Planning – Response requirement study – GIS and GPS in disaster management: Alternate Route for sending relief and shortest evacuation routes – map creation for action plan identification of risk and planning.

Reference Books:

1. Kapur, A. (2010). *Vulnerable India: A Geographical Study of Disasters*. SAGE India Pvt. Ltd., New Delhi.
2. *Vulnerability Atlas of India* (1997). Building Materials & Technology Promotion Council, Ministry of Urban Development, Government of India, New Delhi.
3. Singh, R.B. (2005). *Risk Assessment and Vulnerability Analysis (Chapter 1, 2 and 3)*, Indira Gandhi National Open University (IGNOU), New Delhi.
4. Modh, S. (2010). *Managing Natural Disaster: Hydrological, Marine and Geological Disasters*. Macmillan, New Delhi.
5. Singh, R.B. (2006). *Natural Hazards and Disaster Management: Vulnerability and Mitigation (Edited Volume)*. Rawat Publications, New Delhi.
6. Stoltman, J.P., Lidstone, J. and DeChano, L.M. (2004). *International Perspectives on Natural Disasters: Occurrence, Mitigation, and Consequences (Edited Volume)*. Springer Publications, Dordrecht.

Semester III

ELECTIVE – III – REGIONAL PLANNING

Paper Code: 21PGGE06 **Credits: 4**

Unit I: Concept of Region - Meaning and Types of Regions – Formal Region and Functional Region - Regionalization – Regional imbalance and Disparity.

Unit II: Approaches to Regional Analysis - Geographic Approach – Economic Approach – Holistic Approach.

Unit III: Regional Planning - Meaning and Need for Regional Planning – Planning Principles – Regional Planning Process.

Unit IV: Types and Levels of Planning - Rural and Urban Planning - Sectoral and Spatial planning – Problems of Regional Planning.

Unit V: Regional Planning in India - Development of Backward Areas and Drought Prone Regions – Planning for Hill Area Development and Tribal Development.

Reference Books:

1. Anikouchine, W.A. and Sternberg, R.W. (1973). *The World Oceans - An Introduction to Oceanography*. Prentice-Hall, Englewood Cliffs, New Jersey.
2. Misra, R.P. (1992). *Regional Planning: Concepts, Techniques, Polices and Case Studies*, Concept Publishing Company, New Delhi.
3. Misra, R.P., Sundaram, K.V. and Prakasa Rao, V.L.S. (1974). *Urban and Regional Planning,* Vikas Publishing House, New Delhi.
4. Freeman, H.W. (1968). *Geography and Planning*, Hutchinsan University Press.
5. Friedman, J. and Alanso, W. (1964). *Regional Development and Planning, A Reader,* MIT Press, Cambridge Mass.
6. Litman, T. (2013). *Planning Principles and Practices,* Victoria Transport Policy Institute.

Semester III

Core – XI – Practical – III

THEMATIC CARTOGRAPHY

Paper Code: 21PGGP03 **Credits: 4**

Unit I: Map Compilation and Generalization

1.1 Map Generalization
1.2 Map Compilation
1.3 Scale Conversion

Unit II: Representation of Statistical data into Thematic maps

2.1 Point symbol Maps
2.2 Line symbol Maps
2.3 Area symbol Maps
2.4 Volume symbols Maps

Unit III: Cartographic Appreciation

3.1 Cartographic Appreciation of Survey of India
3.2 Cartographic Appreciation of British Ordnance Survey
3.3 Cartographic Appreciation of US Geological Survey

Unit IV: Survey of India Topographical Sheet

4.1 Detailed interpretation of Survey of India
4.2 Physical Features
4.3 Cultural Features

Unit V: Interpretation of British and US maps

5.1 British Ordnance Survey
5.2 US Geological Survey maps

Reference Books:

1. Monkhouse, F.J. and Wilkinson, H.R. (1971). *Maps and Diagrams (3rd Edition)*. Methuen & Co., London.
2. Khan, M.Z.A. (1998). *Text Book of Practical Geography*. Concept Publishing Company, New Delhi.
3. Negi, B.S. (1998). *Practical Geography*. Kedarnath and Ramnath, Meerut.
4. Singh, G. (1995). *Map Work and Practical Geography (3rd Edition)*. Vikas Publishing House Pvt. Ltd., New Delhi.
5. Khullar, D.R. (2004). *Essentials of Practical Geography*. New Academic Publishing Co., Jalandhar.
6. Robinson, H. (1995). *Elements of Cartography (6th Edition)*. John Wiley and Sons, New York.

Semester IV

Core – XII – GEOGRAPHY OF INDIA

Paper Code: 21PGG09 **Credits: 5**

Unit I: Location and Administrative units – Physiographic divisions – Climate – Soils and Natural Vegetation.

Unit II: Agriculture – Salient features – Factors affecting, agriculture in India – Major crops – rice, wheat, cotton, jute, tea, coffee, sugarcane and tobacco – Irrigation and types – Multipurpose projects.

Unit III: Power resources: Hydel, thermal and nuclear – Mineral resources: Iron ore, manganese, bauxite and mica – Fuel minerals: Coal and Petroleum – Major industries: Iron and steel, Cotton textile, Cement, Sugar and Jute industries.

Unit IV: Transport and communication: Land transport: Road and Railways – Water transport – Inland waterways – Ports – Air transport – Foreign trade – Exports and Imports

Unit V: Population: Growth and Distribution of Population – Migration - Urbanization in India.

Reference Books:

1. Siddhartha, K. and Mukherjee, S. (2013). *Geography through Maps (11th Edition)*. Kisalaya Publications Pvt. Ltd., New Delhi.
2. Husain, M. (2014). *Geography of India (5th Edition)*. McGraw Hill Education, New Delhi.
3. Tirtha, R. (2002). *Geography of India.* Rawat Publications, Jaipur.
4. Singh, G. (1976). *A Geography of India*. Atma Ram & Sons Pub., New Delhi.
5. Siddhartha, K. and Mukherjee, S. (2013). *Geography through Maps (11th Edition)*. Kisalaya Publications Pvt. Ltd., New Delhi.
6. Husain, M. (2014). *Geography of India (5th Edition)*. McGraw Hill Education, New Delhi.
7. Sharma, T.C. and Coutinho, O. (1978). *Economic and Commercial Geography India (2nd Edition)*. Vikas Publishing House Pvt. Ltd., New Delhi.
8. Mamoria, C.B. (1980). *Economic and Commercial Geography of India*. Shiva Lal Agarwala & Company, Agra.
9. Dubey, R.N. and Negi, B.S. (1968). *Economic and Commercial Geography of India*. Kitabmahal, Allahabad.
10. Tiwari, R.C. (2010). *Geography of India*. Prayag Pustak Bhawan, Allahabad.

Semester IV

Core – XIII – PRINCIPLES OF REMOTE SENSING AND GIS

Paper Code: 21PGG10 **Credits: 5**

Unit I: Remote Sensing: Definition – Types – Components – Electromagnetic Radiation – Electromagnetic Spectrum – Interaction of EMR with earth surface and atmosphere – Platforms – Payloads – Historical development – Development of Remote Sensing in India.

Unit II: Aerial Remote Sensing – Types of aerial photographs – Camera – Films – Filters; Photogrammetry: Stereoscopic Vision – Photo Scale – Relief Displacement – Parallax – Mosaic.

Unit III: Satellite Remote Sensing – Types of Satellites – Orbits. Resolutions: Spatial – Spectral – Radiometric and Temporal; Satellite Programmes – Resource Satellites: IRS, LANDSAT, SPOT and Weather Satellites: INSAT and NOAA Series – Image Analysis.

Unit IV: GIS and GNSS: Definition – Components – Data sources – Data models: RASTER, VECTOR & TIN; GIS Analysis: Overlay, Buffer, Network Analysis – DEM. GNSS: Components of GNSS Satellites – GNSS Survey: Handheld GPS and DGPS

Unit V: Application of Remote Sensing and GIS in Geographical Studies – Water Resources – Disaster Management – Land use Planning – Urban Planning.

Books for Reference:

1. Barrett, E.C. and Curtis, L.F. (1992). *Introduction to Environmental Remote Sensing*. Chapman and Hall Publications, London.
2. Campbell, J.B. and Wynne, R.H. (1987). *Introduction to Remote Sensing*. The Guilford Press, New York.
3. Lillesand, T.M. and Kiefer, R.W. (1987). *Remote Sensing and Image Interpretation*. John Willy and Sons, New York.
4. Lueder, D.R. (1959*). Aerial Photographic Interpretation – Principles and Applications*. McGraw Hill Book Co., New York.
5. Jensen, J.R. (2005). *Introductory Digital Image Processing: A Remote Sensing Perspective (4th Edition)*. Pearson Prentice-Hall, New Jersey.
6. Burrough, P.A. and McDonnell, R.A. (2000). *Principles of Geographical Information System (Spatial Information System)*. Oxford University Press, New York.
7. Heywood, I., Cornelius, S. and Carver, S. (2011). *An Introduction to Geographical Information Systems (4th Edition)*. Pearson Education Limited, London.
8. Jeffrey, C. (2015). *An Introduction to GNSS: GPS, GLONASS, Galileo and other Global Navigation Satellite Systems*. NovAtel, Alberta.

Semester IV

ELECTIVE – IV – GEOGRAPHY OF TRAVEL AND TOURISM

Paper Code: 21PGGE07 **Credits: 4**

Unit I: Concepts of Leisure and Tourism – Principles and Purpose – Types of tourism – Significance of Tourism development in Modern society – Tourism development in the world – Tourism in India.

Unit II: History of tourism – Ancient, Medieval and Modern periods – Determinants and motivation of tourism.

Unit III: Elements of tourism – Attraction, Accessibility and Amenities – Classification of tourist spots – Accommodation – Primary and supplementary accommodation – Hotels, Drive inn, Holiday inn and motels.

Unit IV: Role of transport in tourism development – Travel formalities – Tour itinerary – Travel agency – Travel restrictions – Passport, Visa and bank restrictions – Traveller's cheques – Credit and debit cards – Tourism and environment – Eco tourism.

Unit V: Tourism Organization – WTO – ITDS - TTDC and subsidiaries – Tourism promotion – Advertisement – Tourism Planning and Development – Tourist spots in India – Potentials of tourism in India – Problems of tourism development.

Reference Books:

1. Robinson, H. (1976). *A Geography of Tourism*. Mcdonald and Evans, London.
2. Seth, P.N. and Bhat, S.S. (2012). *An Introduction to Travel and Tourism*. Sterling Publishers Private Ltd., New Delhi.
3. Ghosh, B. (2009). *Tourism and Travel Management (2nd Edition)*. Vikas Publishing House Pvt. Limited. New Delhi.
4. Singh, A.P. (1989). *Himalayan Environment and Tourism*. Chugh Publications, Allahabad.
5. Kaul, R.N. (1985). *Dynamics if Tourism: A Trilogy*. Sterling Publishers Pvt. Limited, New Delhi.
6. Bhatia, A.K. (2002). *Tourism Development: Principles and Practices*. Sterling Publishers Pvt. Limited, New Delhi.
7. Singh, S.N. (1985). *Geography of Tourism and Recreation with Special Reference to Varanasi*. Inter India Publication, New Delhi.
8. Das, M. (1983). *India, a Tourist Paradise: Introducing a Wonderful Land and a Wonderful People*. Sterling Publishers Pvt. Limited, New Delhi.

Semester IV

ELECTIVE – IV – TRANSPORT GEOGRAPHY

Paper Code: 21PGGE08 **Credits: 4**

Unit I: Nature, scope and significance of Transport Geography – Different types of transportation – Their merits and demerits – Choice of mode of Transport.

Unit II: Terminal charges and operating charges – Tapering cost structure – Variation in freight structure on distance, commodity, size and elasticity of demand – Long haul advantage.

Unit III: Transportation network – Nodes and links – Connectivity – Accessibility – Centrality – Structural analysis of transportation network – Graph theoretic measures – Stages of development of network – Measures of nodal accessibility – Matrix measures – Shortest path – Desire line – Detour index.

Unit IV: Theories of Spatial interaction – Interaction models – Gravity models – Ullman's triad – Critical appreciation of gravity model – Flows in the network – Intensity of flow – Allocation model for transportation.

Unit V: Transportation and spatial structure – Hinterlands – Regional specialization – Idealized process of transport development – Interdependence of transport and economy – Role of transport in socio-economic integration – Rural and Urban transport – Problems – Urban and Regional transport planning.

Reference Books:

1. Hilling, D. (1996). *Transport and Developing Countries*. Routledge publications, London.
2. Kumar, N. (1991). *Geography of Transportation*. Concept Publication, New Delhi.
3. Taaffe, E.J. and Gauthier, H.L. (1973). *Geography of Transportation – Foundations of Economic Geography Series*. Prentice Hall Foundation, New Jersey.
4. Eliot, H. (1974). *Transportation Geography: Comments and Readings*. McGraw Hill Publications, New York.
5. Hay, A, (1973). *Transport for the Space Economy: A Geographical Study.* Macmillan Publications, London.

Semester IV

Core – XIV – Practical – IV

GIS AND REMOTE SENSING APPLICATIONS

Paper Code: 21PGGP04 **Credits: 4**

Unit I: Aerial Photographs

1.1 Marginal Information

1.2 Interpretation of Aerial photographs

- Physical Features
- Cultural Features

1.3 Determination of Scale

1.4 Determination of Height

Unit II: Satellite Images

2.2 Marginal Information

2.3 Elements of Image Interpretation

- Physical Features
- Cultural Features

2.4 Digital Image Processing

2.5 Image Classification

Unit III: Geographic Information System

3.1 Map to Raster Conversion

3.2 Georeferencing

3.3 Digitization – Point, Line and Polygon

3.4 Data Coding

3.5 DEM and TIN Generation

3.6 GIS Analysis: Query, Buffering and Overlay

Unit IV: Global Positioning Survey

4.1 GPS Survey (Point, Line & Polygon)

4.2 Thematic Map Preparation

Unit V: Global Navigation Satellite Systems

5.1 GNSS Survey (Point, Line & Polygon)

5.2 Thematic Map Preparation

Reference Books:

1. Barrett, E.C. and Curtis, L.F. (1992). *Introduction to Environmental Remote Sensing*. Chapman and Hall Publications, London.
2. Lillesand, T.M. and Kiefer, R.W. (1987). *Remote Sensing and Image Interpretation*. John Willy and Sons, New York.
3. Lueder, D.R. (1959*). Aerial Photographic Interpretation – Principles and Applications*. McGraw Hill Book Co., New York.
4. Heywood, I., Cornelius, S. and Carver, S. (2011). *An Introduction to Geographical Information Systems (4th Edition)*. Pearson Education Limited, London.
5. Jeffrey, C. (2015). *An Introduction to GNSS: GPS, GLONASS, Galileo and other Global Navigation Satellite Systems*. NovAtel, Alberta.

PRACTICAL MODEL QUESTION PAPER

PERIYAR UNIVERSITY
M.Sc., DEGREE EXAMINATION
(For the candidates admitted from 2021-2022 onwards)

Name of the course: **M.Sc., GEOGRAPHY**

Title of the Paper **- Practical-III: THEMATIC CARTOGRAPHY**

Course Code: **21PGGP03**
Semester – IV

Time: 3 Hours Max. Marks: 60
For Practical: (5 x 10) = 50
For Record = 10

Answer ALL question
(*All Questions carry equal marks*)

1. The given portion of the Indian Topographical sheet is in the scale of 1: 50,000. By using the equal square method prepare the generalized map for the physical features in the scale of 1: 77,000.

2. Give a detailed account on various methods of depicting the relief features in the thematic maps with suitable illustrations.

3. Draw a located volume diagram for the following data.

Selected languages of India
No. of Persons known to read and write the languages

Sl. No.	Languages	No. of Persons
1.	Hindi	327272144
2.	Bengali	69595738
3.	Marathi	62481681
4.	Tamil	53006368
5.	Assamese	13079696

4. Interpret the given Indian topographical sheet with special reference to relief and land use.

5. Write the cartographic appreciation of the given British Ordnance survey sheet with suitable diagrams

_____

THEORY MODEL QUESTION PAPER

PERIYAR UNIVERSITY
M.Sc., DEGREE EXAMINATION
(For the candidates admitted from the year 2021-22 onwards)

Name of the course: **GEOMORPHOLOGY**

Course Code: 21PGG01
Semester – I

Time: 3 Hrs. Maximum: 100 Marks

PART A - (15 × 1 = 15 Marks)
Answer ALL questions.

1. "Present is key to the past" is stated by
   (a) James Hutton
   (b) W.M.Davis
   (c) L.C.King
   (d) Alfred Wegner

2. The main causes of faulting is _____
   (a) Gravitational force
   (b) Tidal activity
   (c) Wind
   (d) Tension

3. Wegner fully accepted
   (a) The theory of Isostasy
   (b) The view of place Tectonics
   (c) The view of Arthur Homes
   (d) The sea floor spreading

4. Exfoliation is regarded as a process of
   (a) Mechanical weathering
   (b) Chemical weathering
   (c) Faulting
   (d) Folding

5. When the slope is very steep the movement of mass is?
   (a) Fall
   (b) Creep
   (c) Flow
   (d) Slide

6. Landslide is due to
   (a) Solifluction
   (b) Rockfall
   (c) Heavy rainfall
   (d) Weathering

7. Theory of slope replacement explained by
   (a) Davis
   (b) Penck
   (c) King
   (d) Wood

8. Wood calls the slope of the Talus as
   (a) Constant slope
   (b) Wash slope
   (c) Free face
   (d) Walther penck

9. _____ explains slope development as part of explanation on his “Standard Epigene cycle of Erosion”.
   (a) Davis
   (b) Penck
   (c) King
   (d) Wood

10. The removal of large quantities of loose material by wind
    (a) Abrasion
    (b) Deposition
    (c) Deflation
    (d) Blowout

11. Which of the following is produced by glacial erosion?
    (a) Horn
    (b) Drumlin
    (c) Kame
    (d) Esker

12. Ria coast is formed due to
    (a) Submergence of river valley
    (b) Deposition of sand dunes
    (c) Submergence of glacial valley
    (d) Deposition of alluvium

13. Application of geomorphology is highly useful to
    (a) Ecology
    (b) Hydrology
    (c) Geology
    (d) Zoology

14. In highway construction in glaciated region which of the following in an obstruction
    (a) Eskers
    (b) Yardang
    (c) Meander
    (d) Crevasses

15. In applied geomorphology drainage in
    (a) oil exploration
    (b) highway construction
    (c) mineral ore
    (d) dam construction

PART B - (2 × 5 = 10 Marks)
Answer any TWO questions.

16. Write a note on endogenic forces.

17. Write are the basic assumption of "The Normal Cycle of Erosion theory".

18. Write about the contribution of L.C.King in Geomorphological study?

19. Briefly explain the depositional feature formed by Glaciers.

20. The knowledge on Geomorphology is essential in petrol exploration-explain.

PART C - (5 × 10 = 50 Marks)
Answer ALL questions.

21. (a) Write an essay on fundamental concepts of Geomorphology.

    Or

    (b) Elucidate the Wegner's Continental Drift Theory with evidences.

22. (a) Give a detailed account on different types of weathering process.

    Or

    (b) Write elaborate notes on mass wasting.

23. (a) Appraise the viewes of W. Penck on slope Decline Theory.

    Or

    (b) Evaluate the parallel Retreat of L.C.King.

24. (a) Describe the erosional landforms by wind.

    Or

    (b) Write a geographical account on karst regions.

25. (a) Write about the role of "Morphogenetic region" in Geomorphological study.

    Or

    (b) Write about the role of Applications of Geomorphology in mineral explorations in detail.

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