

॥ अंतरी पेटवू ज्ञानज्योत ॥



उत्तर महाराष्ट्र विद्यापीठ, जळगाव  
NORTH MAHARASHTRA UNIVERSITY,  
P.B.NO.80, UMAVINAGAR, JALGAON- 425 001 (M.S)

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जा.क्र.: उमवि/१२ /विज्ञान विद्याशाखा /१६३३/२००३.

दिनांक : १८/०६/२००३

**\* परिपत्रक क्र.१३५/२००३ \***


**विषय :- जून, २००३ पासून सुधारित अभ्यासक्रम लागू करणेबाबत....**

विद्यापीठ अनुदान आयोगाचे निर्देशाप्रमाणे व विद्यापीठ अधिकार मंडळाने घेतलेल्या निर्णयानुसार जून, २००३ पासून विज्ञान विद्याशाखेतील पदव्युत्तर विषयांचे खालील सुधारित अभ्यासक्रम लागू करण्यात येत आहेत. कृपया याची नोंद घ्यावी व योग्य ती कार्यवाही करावी.

**एम्.एस्सी. (भाग-२)**

- १) रसायनशास्त्र.
- २) प्राणीशास्त्र.
- ३) वनस्पतीशास्त्र.
- ४) भूगोल. (एम्.ए./एम्.एस्सी.)

**सहपत्र :-** यशिलप्रमाणे अभ्यासक्रमाच्या प्रती .

  
उपकुलसचिवाकरिता.

प्रति,

सा.प्राचार्य,

सर्व संबंधित संलग्नित महाविद्यालये.

**प्रतिलिपी :-**

- १) सा.अधिष्ठाता, विज्ञान विद्याशाखा.
- २) सा.अध्यक्ष, विज्ञान विद्याशाखे अंतर्गत येणारी सर्व अभ्यासमंडळे, उ.म.वि., जळगाव.
- ३) सा.कुलमुख कार्यालय, उ.म.वि., जळगाव.
- ४) सा.कुलसचिव कार्यालय, उ.म.वि., जळगाव.
- ५) सा.परीक्षा नियंत्रक, उ.म.वि., जळगाव.
- ६) सा.उपकुलसचिव, संलग्नता विभाग, उ.म.वि., जळगाव
- ७) सा.पध्दती विश्लेषक, संगणक विभाग, उ.म.वि., जळगाव.
- ८) सा.सहा.कुलसचिव, परीक्षा (गोपनीय) विभाग, उ.म.वि., जळगाव. (सोबत-अभ्यासक्रमाच्या ५ प्रती)
- ९) सा.सहा.कुलसचिव, परीक्षा विभाग, संबंधित विद्याशाखा, उ.म.वि., जळगाव.
- १०) सा.कक्षाधिकारी, सभा व दफ्तर विभाग, उ.म.वि., जळगाव.

॥ अंतरी पेटवू ज्ञानज्योत ॥



North Maharashtra University,  
Jalgaon

**Syllabus for M.A./M.Sc.  
(Part-II)**

**(Semester III & IV)**

**GEOGRAPHY**

**W.E. From June, 2003**

**NORTH MAHARASHTRA UNIVERSITY, JALGAON.**

**Syllabus for M.A. / M.Sc. (Part-II)**

**GEOGRAPHY (Sem.III & IV)**

**(W.e.f. June, 2003)**

**Semester - III**

- Gg. 301 [Any of the following According to Specialization ]  
A) Fluvial Geomorphology  
B) Agricultural Geography  
C) Population Geography
- Gg. 302 [Any of the following According to Specialization]  
A) Coastal Geomorphology  
B) Geography of Resources  
C) Geography of Rural Settlements
- Gg. 303 [Any of the following]  
A) Oceanography  
B) Industrial Geography  
C) Political Geography
- Gg. 304 [Any of the following]  
A) Hydrology  
B) Geography of Economic Development  
C) Social and Cultural Geography
- Gg. 305 Interpretation of Aerial Photographs, Satellite imageries and Topographical maps [India, U.K. and U.S.A.]

**Semester - IV**

- Gg. 401 [Any of the following According to Specialization]  
A) Tropical Geomorphology  
B) Geography of Trade and Transport  
C) Urban Geography
- Gg. 402 [Any of the following]  
A) Application of Computer in Geography and G.I.S.  
B) Regional Planning  
C) Dissertation
- Gg. 403 [Any of the following]  
A) Soil Geography  
B) Development of Modern Geography  
C) Geography of Marketing  
D) Regional Geography of U.K. or Australia
- Gg. 404 [Any of the following]  
A) Geography of Watershed Management  
B) Biogeography  
C) Geography of Tourism  
D) Research methodology in Geography
- Gg. 405 Surveying and Excursion  
I) Surveying by Dumpy level, Theodolite and Indian pattern Clinometer  
II) Field survey report by Instrument  
III) Study tour report by observation

॥ अंतरी पेढु ज्ञानज्योत ॥  
**NORTH MAHARASHTRA UNIVERSITY, JALGAON.**  
**SYLLABUS FOR M.A./ M.Sc.(Part-II)**  
**GEOGRAPHY (Sem.III & IV)**

(With Effect From June, 2003)

**Ge. 301 (A) FLUVIAL GEOMORPHOLOGY**

UNIT NO.	UNIT	SUB-UNIT	PERIODS
I	OVERLAND FLOW	1. Introduction 2. Through flow. 3. Overland flow a) Definition b) Nature c) Types d) Characteristics: Length and Depth. Hill Slope Profile: No Erosion belt, erosion and Deposition.	6
II	STREAM FLOW	1. Introduction 2. Mechanism of the Stream flow 3. Factors and Chezy's Equation of the Stream Flow Velocity. 4. Velocity Distribution in Stream Channel: Isovel pattern in symmetrical and asymmetrical channels cross section. 5. Types of Stream Flow: a) Steady and Unsteady flow b) Uniform and Non uniform flow c) Laminar and Turbulent flow 6. Froude and Reynolds Number. 7. Energy loss in stream flow.	7
III	ENTRAINMENT AND SEDIMENT TRANSPORTATION	1. Entrainment 2. Stream power & Competence 3. Mechanism of Sediment Transportation a) Critical Tractive Force b) Stokes' Law and Stoke's Velocity. 4. Types of Sediment Load Transportation a) Solute Load Transportation b) Suspended Load Transportation c) Bed Load Transportation	7
IV	HYDRAULIC GEOMETRY	1. Introduction. 2. Variation in hydraulic geometry at channel cross section: a) Discharge and Depth Relationship b) Discharge and Width Relationship c) Discharge and Velocity Relationship d) Channel cross section types. 3. Variation in hydraulic geometry along channel : a) Discharge and Depth Relationship b) Discharge and Width Relationship c) Discharge and Velocity Relationship d) Channel Pattern: 1) Straight 2) Meandering 3) Braided.	7

V	DRAINAGE DEVELOPMENT:	1. Drainage Hierarchy: a) Horton's System b) Strahler's System 2. Law of the drainage composition: a) Horton's law of stream numbers and bifurcation ratio b) Horton's law of average stream length and length ratio c) Horton's law of average stream area and stream area ratio d) Horton's law of stream slope and slope ratio 3. Drainage frequency 4. Drainage Density 5. Law of Allometric growth	7
VI	CONCEPT OF THE GRADE:	1) Introduction 2) Mackin's concept of grade 3) Longitudinal Profile 4) a) Longitudinal Profile at grade b) Longitudinal Profile below grade c) Longitudinal Profile above grade	4
VII	RIVER METAMORPHIS	1. Long term channel changes 2. Short term channel changes 3. Contraction and Expansion of drainage Network. 4. River capturing 5. Misfit and Underfit channel 6. River Terraces.	7

**REFERENCE BOOKS:**

- 1) L.B. Leopold M.G. Walman (1964) Fluvial Processes in Geomorphology Freeman & Co. San Francisco.
- 2) K.G. Gregory and Walling D. (1973) Drainage basin forms and processes
- 3) Edward Arnold. K. Richard (1982) Rivers: Forms and Processes Alluvial channel
- 4) M. Morrisawa (1985) Stream
- 5) S.A. Schumm (1977) Fluvial System John Wiley & Co.

**Distribution of Marks:**

Unit	Mark							Total Marks:-100
Unit	I	II	III	IV	V	VI	VII	
Mark	15	15	15	15	15	10	15	

**Gg 301(b) Agricultural Geography**

Unit No.	Unit	Sub Unit	Periods	Marks
I	Introduction	A) i) Nature ii) Scope iii) Approaches to study Agricultural Geography B) i) Evolution of Agriculture ii) Place of Agriculture in World Regional Economies	04	
II	Determinants of Agriculture Patterns	i) Physical ii) Economic iii) Technological	06	
III	Problems and Prospects of Agriculture	i) In Arid Regions ii) In Semi Arid Regions	04	

IV	Water Management Systems and Agriculture	A) i) Soil Moisture ii) Movement of Water iii) Water regime and water balance B) i) Irrigation Types ii) Irrigation Systems	08
V	Agricultural Region and Regionalization	i) Crop Combination Techniques ii) Agricultural Regions of India.	06
VI	Agricultural Productivity and Agricultural Efficiency	i) Levels of Agricultural Productivity ii) Levels of Agricultural Efficiency iii) Land use Survey and Planning iv) Land Capability Classification	07
VII	Agriculture in India	A) i) Role of Biotechnology in Agriculture. ii) Organic Farming in India. iii) Regional Pattern of Productivity in India iv) Green and white Revolution B) i) Food deficit and surplus Region ii) Nutrition Index. C) i) Specific Problems in Indian Agriculture, its management and planning. ii) Agricultural Policy of India.	10

**Weightage**

Unit Nos.	I	II	III	IV	V	VI	VII
Periods	04	06	04	08	06	07	10
Marks	20	20	10	10	10	10	20

**Reference Books :**

- |                                   |   |
|-----------------------------------|---|
| 1. Alexander                      | - Economic Geography                                    |
| 2. Chisholm M.                    | - Geography and Economics                               |
| 3. Chisholm M                     | - Settlement and Land Use                               |
| 4. Dukham and Masefield           | - Forming systems of the World                          |
| 5. Dunn E.S.                      | - The Location of Agricultural Production               |
| 6. Grigg D.D.                     | - An Introduction to Agricultural Geography             |
| 7. Gregor, Howard F.              | - Geography of Agriculture, Themes in Research.         |
| 8. Haines Michael                 | - An Introduction to Farming Systems.                   |
| 9. Heatcote P.L.                  | - The Arid Lands, Their use and Abuse.                  |
| 10. Jasbir Singh                  | - Agricultural Geography                                |
| 11. Memoria C.B.                  | - Economic and Commercial Geography                     |
| 12. Morgan W.B. and Munton R.J.C. | - Agricultural Geography                                |
| 13. Noor Mohammad                 | - Perspective in Agricultural Geography                 |
| 14. Masjid Hussain                | - Agricultural Geography                                |
| 15. Simon                         | - Agricultural Geography                                |
| 16. Tibery B.W.                   | - Agricultural Geography, Social and Economic Analysis. |

**Gg 301 (C) POPULATION GEOGRAPHY**

Unit No.	Unit	Sub- Unit	Periods
I	Introduction	a) Definition of Population Geography b) Nature and Scope c) Sources and Types of Population data Problems of Population data	06
II	Distribution and Density of Population	a) World Population growth in modern period b) World Population distribution pattern and their determinants Physical, Social, Economic and Demographic factors	06
III	India	a) Population distribution b) Density and growth profile c) Concept of under and over Population d) India's Population Policy e) Population and Environment.	08

IV	Dynamics of Population Growth	a) Fertility i) Level and trends of fertility ii) Determinants of fertility b) Mortality i) Level and trends of Mortality ii) Determinants of Mortality	07
V	Migration	Migration i) Meaning, Importance ii) Types - National and International iii) Effects of migration	06
VI	Population Composition	a) Age Composition i) Age Pyramids ii) Age GroupS iii) Patterns of World age Structures. b) Sex Composition i) Important determinants ii) Sex ratio iii) World Patterns of Sex ratio. c) Cultural Characteristic i) Educational and Literacy ii) Religions	06
VII	Theories of Population	a) The theory of Demographic transition b) Optimum Population Theory	06
<b>Total Periods</b>			<b>45</b>

**References Books :-**

Sr. No.	Author	Name of the Books / Publications
01	Beaujeu Garnier J.	* Geography of Population " Newyork, St. Martin's Press, 1966
02	Bogue, D. J.	* Principles of Demography " N.Y.J.Wiley and Sons inc. 1969
03	Clarke J.L.	* Population Geography " Goford, Pergamon Press, 1965
04	Chandra R. C.	* A Geography of Population "Kalyani Publishers, New Delhi, 1994
05	Chandra R.C.	* Introduction of Population Geography " 1983
06	Demko, Jetal	* Population Geography " MC Graw Hill, N.Y., 1970
07	Ghosh B. N.	* Fundamentals, of Population Geography, Sterling Publishers Private Limited, New Delhi - 1987

<b>Weightage</b>							
<b>Topic Nos.</b>	:-	I & II	III	IV	V	VI	VII
<b>Marks</b>	:-	20	15	15	15	15	20
							<b>Total :- 100</b>

**Gr. 302 (A) COASTAL GEOMORPHOLOGY**

UNIT NO.	UNIT	SUB-UNIT	PERIODS
I	INTRODUCTION:	1- a) Definition b) Nature c) Scope d) Significance e) Recent advances 2. Coast and Shore a) Definition of coast and shore b) Classification coast and shores 3. Factors of the Coastline Development. a) Lithology b) Waves c) Currents d) Tides	5

II	SEA WAVES:	<p>1. Definition</p> <p>2. Morphology:</p> <ul style="list-style-type: none"> <li>a) Length</li> <li>b) Height</li> <li>c) Amplitude</li> <li>d) Depth</li> <li>e) Period,</li> <li>f) Frequency</li> <li>g) Fetch.</li> </ul> <p>3. Classification:</p> <ul style="list-style-type: none"> <li>a) Sea Waves: Shallow water and Deep water</li> <li>b) Wind waves, Storm waves and Tsunamis.</li> <li>c) Capillary waves, Gravity waves and Tidal waves.</li> <li>d) Swells and Breaking of the Waves.</li> <li>e) Wave Refraction, Defecation and Reflection</li> </ul>	6
III	CURRENTS AND TIDES	<p>1. Currents:</p> <ul style="list-style-type: none"> <li>a) Definition</li> <li>b) Type: <ul style="list-style-type: none"> <li>1) Wave induced shore: Normal currents, Long shore currents, Rip currents and Beach drifts.</li> <li>2) Wind induced currents.</li> <li>3) River induced currents.</li> <li>4) Tide induced flood and ebb currents.</li> </ul> </li> </ul> <p>2. Tides:</p> <ul style="list-style-type: none"> <li>a) Definition</li> <li>b) Tide generating forces</li> <li>c) Equilibrium theory.</li> <li>d) Types of the Tides: <ul style="list-style-type: none"> <li>1) Diurnal and semi-diurnal.</li> <li>2) Spring and Neap tide</li> </ul> </li> <li>e) Tides in coast, bay, and estuary</li> <li>f) Tidal waves and coastal landforms.</li> </ul>	6
IV	SEA LEVEL CHANGES	<p>1. Introduction</p> <p>2. Eustasy:</p> <ul style="list-style-type: none"> <li>a) Definition</li> <li>b) Types. <ul style="list-style-type: none"> <li>1) Glacial Eustasy: Causes, Consequences and Staircase theory.</li> <li>2) Tectonic eustasy.</li> </ul> </li> </ul> <p>3. Istostasy:</p> <ul style="list-style-type: none"> <li>a) Definition</li> <li>b) Causes</li> <li>c) Hydro-isotasy</li> <li>d) Evidences of shoreline movements</li> <li>e) Fossil beaches, fossil Ridges, Beach rocks, abandoned cliffs and caves shore platforms and raised features.</li> </ul>	7
V	COASTAL EROSION AND DEPOSITION	<p>1. Mechanism.</p> <p>2. Landforms of coastal erosion (Process and morphology).</p> <ul style="list-style-type: none"> <li>a) Sea cliffs and shore platform,</li> <li>b) Caves, Arches and Stacks</li> <li>c) Geos and blow holes.</li> </ul> <p>3. Landforms of coastal deposition (Process and morphology).</p>	



		<ul style="list-style-type: none"> <li>a) Beaches</li> <li>b) Spits Bars and Barrier islands.</li> <li>c) Sand dunes</li> <li>d) Mangroves, swamps, salt marshes</li> <li>e) Estuaries and mudflats</li> <li>f) Deltas</li> <li>g) Coral reefs</li> </ul>	8
VI	COASTAL SEDIMENTS	<ul style="list-style-type: none"> <li>1. Source</li> <li>2. Types(Sources and Characteristics)</li> <li>3. <ul style="list-style-type: none"> <li>a) Terrigenous</li> <li>b) Biogenous</li> <li>c) Volcanic</li> <li>d) Meteoric</li> </ul> </li> </ul>	7
VII	APPLIED COASTAL GEOMORPHOLOGY	<ul style="list-style-type: none"> <li>Current coastal issues and Management's</li> <li>a) Sea level rise</li> <li>b) Storm hazards</li> <li>c) Controlling shore erosion</li> <li>d) Destabilization of the coast due to recreations</li> <li>e) Wetlands and estuarine reclamation</li> <li>f) Waste disposal in coastal environments</li> <li>g) Protection, measures for beach and cliff erosion</li> <li>D) Management of sand dunes.</li> </ul>	6

**REFERENCE BOOKS:**

- 1) Davis J.L. (1977): Geographical variations in coastal Developments Longman, London.
- 2) Pethic John(1984):An Introduction to Coastal Geomorphology Arnold Heinmann, London.
- 3) Tooley M.J.&Sheneman Ian (1987): Sea level changes, Basil Blackwell, London.
- 4) Karlekar S.N. (1993): Coastal Geomorphology of Konkan, Aparna Publications Pune-37
- 5) Ahmed E. (1973): Coastal Geomorphology of India. Orient Longman, Bombay.
- 6) Garrison T. (2001) Oceanography-An Introduction to Marine Science, Books/Cole, Pacific Grove, U.S.A.
- 7) King C.A.M. (1962): Oceanography for Geographers.
- 8) Hails J.R. (1977): Applied Geomorphology. Elsevier's New York.
- 9) Muirweed A.M.& Fleming C.A. (1981): Coastal Hydraulics. McMillan, London.

UNIT	:-	<b>I &amp; II</b>	<b>III</b>	<b>IV &amp; V</b>	<b>VI &amp; VII</b>	
MARKS	:-	25	20	30	25	Total:-100

**Gg 302(b) Geography of Resources.**

UnitNo	Unit	Sub Unit	Periods
I	Concept of Resources	<ul style="list-style-type: none"> <li>i) Definition <ul style="list-style-type: none"> <li>(a) Importance of technology in Changing Status of different resources.</li> </ul> </li> <li>ii) Types of Resources <ul style="list-style-type: none"> <li>(a) Biotic and Abiotic</li> <li>(b) Renewable and Non- renewable.</li> </ul> </li> </ul>	06
II	Levels of Utilization	<ul style="list-style-type: none"> <li>i) Non-Participative</li> <li>ii) Participative but non-consumptive</li> <li>iii) Consumptive but non-contaminative</li> </ul>	04
III	Resource Surveys appraisal and Management	<ul style="list-style-type: none"> <li>i) Aims, Objectives, Processes. <ul style="list-style-type: none"> <li>a) Inventory Vs need based Surveys</li> <li>b) Need of Management</li> <li>c) Present pattern of Utilization and its importance.</li> <li>d) Management of living and non-leaving resources.</li> </ul> </li> </ul>	06

IV	Material Resources	<p>i) Water, Soil and minerals.</p> <p>(a) Water- Global and National Estimates of available water. -Claimants of the esources. -India's Water Wealth -National grid -Interstate and International water.</p> <p>(b) Soil – As a media of plant growth. - Indian Soils - Levels of fertility - Soil Erosion and Degradation - Soil conservation</p> <p>(c) Minerals - Iron ore - Mica - Bauxite</p>	10
V	Energy Resources	<p>(i) Coal, Petroleum</p> <p>(ii) Non-Conventional energy Resources.</p> <p>(a) Coal - Distribution - Major Users - Major Thermal Power Project (Maharashtra)</p> <p>(b) Petroleum - Oilfields and refineries - User Industries. - Petro Chemical Industries</p> <p>● Non-Conventional energy, Solar Nuclear, biogenic, wind wave, Geothermal.</p>	08
VI	Human Resources	<p>i) Quantitative Assessment</p> <p>(a) Distribution and density of Population (b) Occupational Structure</p> <p>ii) Qualitative Assessment.</p> <p>(a) Literacy level (b) Health Conditions (c) Levels of employment (d) Govt. Policy</p>	06
VII	Conservation of Resources	<p>(i) Needs, Wants, Wastes</p> <p>(a) Growth of Population and increasing demand (a) Changing Nature of use of resources. (b) Impact of Development of Agriculture, Industries, Ubanization. (c) Economic, Scientific and recreational values.</p> <p>(ii) Methods of Conservation Beneficentation, Maximization, Substitution and Recycling.</p> <p>(iii) Future Policies on Conservation.</p> <p>(a) Role of Science and Technology (b) Estimates of Population growth –Changing life style. (c)Ecological and Environmental Planning.</p>	05

Unit Nos.	:-	I	II	III	IV	V	VI	VII
Periods	:-	04	06	04	08	06	07	10
Marks	:-	20	20	10	10	10	10	20

**Reference Books :**

1. India's Water Wealth - V.K.L. Rao
2. Geography of Resource - Prof. Negi
3. Environmental Conservation - Dasmann Raymond F.(1972)
4. Environmental Geography - Savinder Sing.
5. Soil Science. - J.A. Daji.

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**Gg. - 302 (C) Geography of Rural Settlement**

Unit No.	Unit	Sub-Unit	Periods
Unit I	Introduction to Rural Settlement	I) Definition, Scope and objectives of study. II) Approaches to rural settlement III) Concept of Rural Settlement Geography IV) Recent Trends and Future Tasks	5
Unit II	Types, size and spacing of Rural Settlement	I) Factors influencing site, situation and development II) Concept of nucleation and dispersion III) Distribution of rural settlements.	7
Unit III	Housing and Morphology of Rural Settlement	I) Factors influencing rural housing II) Conditions of housing in India and Rural housing schemes in India III) Factors influencing the rural Morphology IV) Types of rural morphology	7
Unit IV	Theories and Recent technique in Rural settlement Geography	I) Vanthunes and central place Theory II) Remote sensing and Rural, Settlement Geography.	6
Unit V	Rural trans-formation	Socio-economic transformation of Rural settlement (a) Nature and Pattern of rural transformation in India	7
Unit VI	Rural Planning	I) Need of Planning II) Role of government policy on rural development - DPAP, IRDP Programme III) Rural planning problems in India - Land use, transport and population planning. IV) Role of G.I.S. in Rural Planning	8
Unit VII	Environmental issues in Rural Settlement	I) access to environmental infrastructure. II) Water Supply. III) Sanitation, drainage	5

**Books**

1)	Alam S.M.	"Settlement System in India" Oxford & IBH - Pub. New Delhi
2)	Chisholm M	"Rural Settlement and land use" John Wiley, New York, 1967
3)	Brock J.O.M. and Welb, J.W.	"Geography of Mankind Mc. Graw Hill London, 1978
4)	Grover N.	Rural Settlements - A cultural Geographical Analysis. Inter-India Publication, Delhi 1985
5)	Hadson F.S.	"Geography of Settlement" Mac Donald and Evans Pub. 1977
6)	Mandal R.B.	"Introduction to Rural Settlements" Concept Publication New Delhi - 1989
7)	Rao E.N.	"Strategy for integrated rural development" B.R. Pub. Delhi - 1986
8)	Maguire D.J.M.F. Good Child and D.W. Rhind (eds)	GIS : Principles and application. Taylor & Francis, Washington 1991
9)	Mora A :	"Report on house types and village, settlement pattern in India" Pub. Dept of Govt. of India 1980

**Weightage**

Unit No.:-	I&II	III	IV	V	VI	VII	Total:- 100
Marks	20	15	15	15	20	15	

**Gp. 303 ( A) OCEANOGRAPHY.**

UNIT NO	UNIT	SUB-UNIT	PERIODS
I	INTRODUCTION:	1. Definition, Nature and Scope of Oceanography. 2. History of Oceanography. 3. Hypsographic Curve: Distribution of land and water. 4. Distribution of World Oceans 5. Major features of Ocean Basins.	5
II	MARINE TOPOGRAPHY.	1. Earths Structure and Plate Tectonic. 2. Marine Topography: a) Atlantic Ocean b) Pacific Ocean c) Indian Ocean	6
III	PROPERTIES OF OCEAN WATER:	1. Physical Properties of Ocean Water a) Temperature b) Density. 2. Chemical Properties of Ocean Water. a) Salinity	8
IV	DYNAMICS OF OCEAN WATER:	1. Waves 2. Currents 3. Tides.	6
V	CORAL FORMATION:	a) Definition b) Conditioning Factors c) Types. d) Evolution: 1) Murrays Theory 2) Darwin's Theory 3) Dallys' Theory.	8
VI	MARINE BIOLOGICAL ENVIRONMENT	1. Biogeochemical Cycles in the Oceans 2. Biozones. 3. Types of Organisms a) Planktons b) Nektons c) Benthons 4. Food Pyramid 5. Mineral Resources of the sea.	6
VII	HUMAN IMPACT ON MARINE ENVIRONMENT:	1. Law of the Sea. 2. Marine Pollution. 3. Marine Deposits. 4. Estuaries & Delta.	6

**REFERENCE BOOKS:**

1. Davis, Rechar J.A. (1986): Oceanography-An introduction to marine environment. C.Brown Iowa.
2. Duxbury C.A. and Duxbury B. (1996): An introduction to worlds' oceans. C.Brown Iowa
3. Sharma, Vithal (1977): Introduction to Oceanography.
4. Garrison T. (2001) Oceanography-An Introduction to Marine Science, Books/Cole, Pacific Grove, U.S.A.
5. King C.A.M. (1962): Oceanography for Geographers.
6. Gross, M.Grant (1987): Oceanography view of the earth Prentice-Hall Inc. New Jersey.
7. Ummerkuty A.N.P. (1985) Science of the Oceans and Human life. NBT New Delhi.

**MARKS DISTRIBUTIONS:**

UNIT:	:-	I & II	III & IV	VI	V & VII
MARKS.	:-	30	30	10	30

Gg 303 (B) Industrial Geography.

Unit No.	Unit	Sub Unit	Periods	Marks
I	Introduction to Industrial Geography	a) Nature of Industrial Geography b) Scope of Industrial Geography c) Significance of Industrial Geography	06	
II.	Location of Industries	Locational factors associated with the development of industries. a) Raw materials b) Market c) Transportation Cost d) Power Supplies e) Processing Cost f) Labour g) Capital h) Government Policies i) Agglomeration j) Economies of Scale	08	
III	Industrial Location	Models of Industrial Location put forward by a) Alfred Weber b) August Losch c) Tord Pallender d) Isard	06	
IV	A) The impact of Industrial Activity  B) The Spatial Strategy of Industrial Development.	a) Economic Impact b) Environmental Impact c) Social and Cultural Impact d) General Welfare Impact  a) Regional Problem and problem regions b) The regional problems and industrial development planning. c) Neo-classical Location theory and industrial development strategy d) Growth points and spatial integration e) Scale-Externalities and the industrial complex.	10	
V	Distribution and changing patterns of selected industries.	World distribution a) Iron and Steel industry b) Textile industry c) Automobile industry d) Hardware and Software industry	06	
VI	Industrial regions	Study of the industrial Regions of the following a) U.S.A. b) Japan c) India	04	
VII	Concepts and Methodology in Industrial Geography	Methods of measuring the spatial distribution of manufacturing. a) Location Quotient b) Co-efficient of geographic association c) Index of concentration d) Scatter diagram	05	

Unit No.	:-	I	II	III	IV	V	VI	VII
Periods	:-	06	08	06	10	06	04	05
Marks	:-	20	20	10	20	10	10	10

**Reference Books :-**

- 1) Alexander J.W. - Economic Geography, Prentice-Hall of India, New Delhi.
- 2) Alexanderson G.- Geography of manufacturing, Prentice-Hall, Bombay.
- 3) Estall R.C. and Buchanan R.D.- Industrial activities and economic geography, Hutchinson University library, London.

- 4) Jarret H.R. - Geography of Manufacturing, Mac Donald and Evans.
- 5) Leong, Goh cheng and Morgan Gillian C. - Human and Economic Geography
- 6) Miller E.W. - A Geography of Industrial Location, Rown, Pubuglle, Iowa.
- 7) Smith D.W. - A Geography of Industrial Location, John Wiley, New York.
- 8) Thoman, Conkling and Yeates, - A Geography of Economic Activities, Mc Graw Hill Co.

**Gg 303 (C) Political Geography**

Unit No.	Unit	Sub-Unit	Periods
I	An Introduction to political Geography	A) Definition of political Geography and Geopolitics B) Nature and Scope C) Relationship of political Geography to Geopolitics and other Social Sciences.	06
II	Approaches to the study of Political Geography	A) Power analysis approach B) Historical approach C) Morphological approach D) Functional approach	04
III	Spatial Factors in Political Geography	A) Definition of state and nation B) Location of the state i) The Astronomical ii) The Relative iii) The Costal location C) Size of the State D) Shape of the State i) Compact ii) Elongated iii) Fragmented iv) Prorupted v) Perforated vi) Complex	06
IV	Elements of Political Geography	A) Physical Elements i) Relief ii) Climate iii) Inland Water bodies B) Human Elements i) Population ii) Racial Composition iii) Linguistic Patterns iv) Religious Composition	06
V	International Boundaries	A) Definition of Boundaries B) Classification of Boundaries i) Morphological ii) Genetics C) Functions of Boundaries i) Defensive ii) Political iii) Economic iv) Social barriers	08
VI	Politco - Geographical Problems	A) Population Explosion B) International Migration C) Geostrategy and Future of Antarctica D) Indo - Pak Dispute i) Boundary Dispute ii) Kashmir Disputer	09
VII	Global Strategic Views	A) Heart land Theory B) The Rimland Theory C) Unified Field Theory	06

**Reference Books**

Sr. No	Author	Name of the Books / Publications
1	B.L.Sukhawal	'Modern Political Geography of India' Sterling Publishers Private Ltd. New Delhi.
2	R.D.Dixit	'Political Geography', Tata Macraw Hill Pub. Com. Ltd. New Delhi.
3	R.L. Dwivedi	'Fundamentals of Political Geography' (1990) Chaitanya Publication House, Allahabad.
4	Richard Muir	'Modern Political Geography (1975)' The Macmillan Press Ltd. London.
5	O.H.K. Spate	Changing Map of Asia
6	Janak V.A.	Some Aspects of Political Geography in India
7	K. Satyamurthy	Political Geography of India

Weightage:-

Topic Nos.:-	I & II	III	IV	V	VI	VII	
Topic Nos.:-	20	15	15	15	20	15	Total:- 100

**Gg. 304 ( A ) HYDROLOGY.**

UNIT NO.	UNIT	SUB-UNIT	PERIOD
I	INTRODUCTION:	1. Definition, Nature and Scope. 2. Elements of Surface Hydrology 3. Global Hydrological Cycle.	5
II.	PRECIPITATION:	1. Definition. 2. Types. 3. Intensity mass curve. 4. Hydrograph.	6
III	EVAPOTRANSPIRATION AND INFILTRATION:	1. Evaporation 2. Transpiration 3. Evapotranspiration 4. Factors of Evapotranspiration 5. Methods and measures. 6. Infiltration: a) Definition b) Methods of Measurements c) Factors affecting infiltration.	8
IV	RUNOFF:	1. Definition 2. Methods and Measures 3. Rainfall-Runoff Relationship 4. Flood Hydrographic.	6
V	FLOOD:	1. Definition. 2. Factors affecting flood occurrence 3. Rating Curve. 4. Types of gauging stations 5. Gauge and Discharge Relationship.	6
VI	GROUND WATER:	1. Definition 2. Aquifer: a) Definition b) Types 3. Water table and Vadose Zone. 4. Hydraulic conductivity. 5. Transmissibility 6. Springs and Artesian Wells.	6
VII	GROUND WATER MANAGEMENT AND CONSERVATION.	1. Ground Water Management: a) Ground Water Movements b) Recharging and Discharging c) Ground Water Zones and regionalization. 2. Ground Water conservation	8

**REFERENCE BOOKS:**

1. Addison H. (1961): Land and Flood. Champman and Hall, London
2. Chorley R.J. (1969) Introduction to Physical Hydrology. Methuen, London
3. Chorley R.J. (1967): Water Earth and Man. Methuen, London
4. Dakshinmurthy C. (1973): Water resource of India and their utilization in agriculture. Indian Agriculture Research Institute, New Delhi
5. Jones J.J.A. Global Hydrology: Processes Resources and Environmental Management. Longman, London.
6. Toad D.K. Ground Water Hydrology.
- 4 Wisler: Hydrology.
- 5 Wilson E.M. Engineering Hydrology.

**MARKS DISTRIBUTIONS:**

UNIT	: -	I & II	III	IV, V & VI	VII
MARKS	:-	25	20	35	20

**Gg 304 (b) Geography of Economic Development**

Unit No.	Unit	Sub Unit	Periods	Marks
I	Introduction	i) Geography of Economic Development. Relationship between Geography and Economic Development. ii) Economic growth and development. a) Definitions b) Historical review of the Eco. Development.	04	
II	Patterns of Economic Development.	Patterns of Economic Development in contemporary world. a) Developed, developing and under developed areas of the world. b) Spatial & Temporal economic development in India.	04	
III	Problems of Economic Development	Problems of developing & under-developed countries. a) Resource b) Economic c) Political d) Sociological e) Trade	05	
IV	Models of Economic Development	i) Demographic Transition Model - Classification of countries according to Demographic stages. ii) Rostow's Model - Introduction, stages, applicability. iii) Edward Taffe's Model - Introduction, Ideas and applicability of model in present age.	08	
V	Growth Poles and Regional Development.	i) Growth Pole theory a) Boudville Study of relationship between Growth poles and Regional Development in India. ii) R.P. Misra's Idea - Growth Foci. Introduction, Ideas and applicability in India.	08	
VI	Case Studies	Developed region and natural resources. a) Developed region poor in natural resources - Japan b) Developed region rich in natural resources - U.S.A. c) Developing regions potentially rich in natural resources - India. d) Developing regions rich in natural resources - Brazil.	08	
VII	Trade	Inter regional and International Trade a) Balance of trade b) Role of trade in Economic development c) Trading blocks in the world. d) Trade agreement of the world.	08	



Unit Nos.	:-	I	II	III	IV	V	VI	VII
Periods	:-	04	04	05	08	08	08	08
Marks	:-	10	20	10	10	20	20	10

**Reference Books :**

1. Cairo Cross A.K. - Factors in Economic development.
2. Cole J.P. (1983) – Geography of World Affairs, butter worths, London.
3. David M. Smith – An Economic Geographical Analysis.
4. Fryer D.W. – World Economic Development.
5. Furtado C. (1964) – Regional Development of Brazil.
6. Glosburg Norton (ed) – Essays on Geography of Economic Development.
7. Haggett Peter (1975) – Geography : A Modern Synthesis.
8. Hodder B.W. (1968) – Economic development in Tropics.

**Gg 304 (C) Social and Cultural Geography**

Unit No.	Unit	Sub-Unit	Periods
Unit I	Introduction	Nature & Scope (a) Cultural Geography as a branch of Human Geography (b) Major themes in Cultural and Social Geography. (c) Cultural and Social Environment.	5
Unit II	The Cultural Complex	Cultural Land Scene – (a) Development of Cultural land scene (b) Cultural Regions (c) Cultural as traits complexes and systems (d) Culture as a method of recent Human evolution	6
Unit III	Evolution of Civilization	(I) Evolution and Growth of Civilization (a) Onset of Civilization (b) Growth of regionally Dominant cultures (c) Differential Cultural development. (II) Cultural system (a) Region and Language in Cultural system. (b) Cultural system in India.	8
Unit IV	Origin & growth of Culture	(I) Origin of Culture (a) Dispersal and Diffusion of Culture (b) Cultural Convergence and divergence. (II) Trends in culture (a) Recent trends towards decreasing cultural diversity. (III) Origin of Agriculture (a) Centres of origin of agriculture (b) Domestication of Plants & Animals.	10
Unit V	Theories and Models in Social Geography	(I) Models of Interaction. (a) Gravity Model (b) The intervening opportunity.	6

		(II) Concept of space. (a) Pattern, Processes and concept of space in social geography (b) Geography and Social problems.	
Unit VI	Social Process	(I) Various Processes (a) Residential locations and Intra Urban Mobility. (b) Segregation (c) Migration (d) Social Change and Urbanization	5
Unit VII	Cultural Region	(a) Cultural Regions in India	5

**Books**

1)	Social Geography	Ajaruddin Ahmad Rawat Publication Jaipur, New Delhi
2)	Readings in Social Geography	Edited by Emrys Johns Oxford University Press - 1975
3)	Geography of India	Rajit Tintha Eastern Michingan University U.S.A. and Regional
4)	Introducing Cultural Geography	Spencer J.E. and W.L. Thomas
5)	Readings in Cultural Geography	Wagner P.L. and Mikesell M.W.
6)	Cultural Geography	Edited by Majid Husain Anmol Publications Pvt. Ltd. New Delhi 110002
7)	Regions in Social Geography	John Emrys (Ed)
8)	An Introduction to Social Geography	John Emrys and Eyles John
9)	Vishwaka Sanskrutik Bhugol	Dr. Jain
10)	Man and Land A Cultural Geography	Carter, George E.

**Weightage**

Unit No.	:-	I & II	III	IV	V	VI	VII	Total:- 100
Marks	:-	20	15	20	15	15	15	

**Gg. 305 INTERPRETATION OF AERIAL PHOTOGRAPHS, SATELITE IMAGERIES & TOPOGRAPHICAL MAPS (INDIA, U.K. & U.K.).**

UNIT NO	UNIT	SUB-UNIT	PERIOD
I	INTRODUCTION TO VERTICAL AERIAL PHOTOGRAPHS	1. Vertical photographs: a) Preparation of stereocards b) Study of side information and size of Photographs. c) Photograph number & scale	4
II	SETTING OF STEREOSPHERE & IMAGE INTERPRETATION	1. Introduction: a) Principal points b) Fiducial marks c) Flite line. d) Shadows, run numbers & specific numbers 2. Preparation of photomaps from overlapping regions a) Relief features and cultural features b) Cultural features	10

		<p>3. Determination of photocells</p> <p>a) By using focal length of camera &amp; flying Height.</p> <p>b) By corresponding toposheet.</p> <p>4. Determination of height.</p> <p>a) By single photograph</p> <p>b) By using parallel bar</p> <p>5. Interpretation of at least two aerial photographs</p>	
III	LANDSAT IMAGERIES:	<p>1. Introduction to satellite imageries.</p> <p>a) Annotation strip</p> <p>b) Area coverage</p> <p>c) Scale</p> <p>d) Band</p> <p>2. Preparation of map (at least two)</p> <p>3. Interpretation of land sat imageries (at least two)</p>	9
IV	INTRODUCTION TO TOPOGRAPHICAL MAPS:	<p>1. Marginal information.</p> <p>2. Preparation of the comparative chart marginal information of Indian, U.S.'s O.S. maps with respect to following points</p> <p>a) Indexing</p> <p>b) Extent.</p> <p>c) Area.</p> <p>d) Administrative setup</p> <p>e) Scale</p> <p>f) Contour interval</p> <p>g) Colour</p> <p>h) Sign and symbols.</p>	4
V	S.O.I. TOPOSHEET:	<p>1. Interpretation of S.O.I. Toposheet with respect of the following points. (For Mountain, plain &amp; desert region)</p> <p>a) Physical feature</p> <p>b) Cultural features.</p> <p>2. Draw the maps for physical and cultural Features separately</p>	6
VI	O.S. TOPOSHEET:	<p>1. Interpretation of .O. S. (British). Toposheet With respect of the following points:</p> <p>a) Physical features</p> <p>b) Cultural features</p> <p>2. Draw the maps for physical and cultural Features separately</p>	6
VII	U.S.A. TOPOSHEET:	<p>1. Interpretation of .U.S.A. (American). Toposheet with respect of the following points:</p> <p>a) Physical features</p> <p>b) Cultural features</p> <p>2. Draw the maps for physical and cultural Features separately</p>	6

**REFERENCE BOOKS:**

1. Pant J. Curran () Principles of Remote Sensing. English Language Book Society, London
2. Ramphal. K.K. Handbook of Aerial Photography & Interpretation Concept Publication New Delhi.
3. Bhatt A.B. Aerial photographs & Remote Sensing.

**MARKS DISTRIBUTION:**

Unit :-	I	II	III	IV	V	VI	VII
Marks :-	05	15	15	05	10	10	10

**Gg. 401 (A) TROPICAL GEOMORPHOLOGY.**

UNIT NO	UNIT	SUB-UNIT	PERIODS
I	TROPICS	1. Definition 2. Extent 3. Morphogenetic regions on the basis of : a) Climates b) Natural Vegetation c) Geomorphic Process. d) Landforms. 4. Scope and significance of the tropical Geomorphology.	7
II	TROPICAL WEATHERING	1. Definition 2. Factors of weathering 3. Weathering Types. 4. Processes and Products 5. Weathering Profile. 6. Regolith characteristics. 7. Weathering depth and Patterns.	7
III	LATERITE:	1. Definition 2. Occurrence 3. Formation 4. Classification a) Morphological b) Genetic c) Composition d) Structure 5. Laterite Profile on granite/Basalt. a) Truncated b) Non-truncated. 6. Duricrust: a) Definition b) Formation c) Types. 7. Laterite landforms with special reference To India.	7
IV	TROPICAL DENUDATION	1. Introduction 2. Mechanical Eluviation. 3. Chemical Denudation 4. Mass Movement. 5. Slope Wash 6. Stream Erosion.	7
V	TROPICAL DEPOSITION:	1. Stability and instability concepts of Land surface. 2. K-Cycles. 3. Tropical Delta:	5

		<ul style="list-style-type: none"> <li>a) Definition</li> <li>b) Occurrence.</li> <li>c) Formation.</li> <li>d) Structure</li> <li>e) Types</li> </ul>	
VI	TROPICAL TERRAIN	<ul style="list-style-type: none"> <li>1. Introduction</li> <li>2. Tropical Relief Characteristics</li> <li>3. Tropical Drainage Characteristics</li> <li>4. Tropical Terrain Classification                             <ul style="list-style-type: none"> <li>a) Budel's Terrain Classification</li> <li>b) Doornkamps Terrain Classification</li> <li>c) Mabbutt's Terrain Classification</li> <li>d) D'Hoore's Terrain Classification</li> </ul> </li> </ul>	6
VII	TROPICAL LANDFORMS	<ul style="list-style-type: none"> <li>1. Introduction</li> <li>2. Tropical Slopes</li> <li>3. Tropical Valley Forms.</li> <li>4. Tropical Escarpment</li> <li>5. Tropical pediments</li> <li>5. Tropical Tors &amp; Domes</li> <li>6. Tropical Planations                             <ul style="list-style-type: none"> <li>a) Etch Plain                                     <ul style="list-style-type: none"> <li>1) Definition</li> <li>2) Wayland's Concept of formation.</li> <li>3) Types</li> </ul> </li> <li>b) Budel's Double Planation concept.</li> </ul> </li> </ul>	6

**REFERENCE BOOKS:**

1. Michael F. Thomas (1974): Tropical Geomorphology. MacMillan.
2. Douglas I. & Spenser (1985): Environmental Changes and Tropical Geomorphology. George Allen and Unwin London.
3. Faniran A. and Teje.L.K. (1983): Humid Tropical Geomorphology. Longman London
4. Tricart J. (1972): Landforms in Humid Tropics, Forest, and Savanas Longman London
5. Sharma H.S. (1969): Tropical Geomorphology. UNESCO Paris.
7. Twidale C.R. (1976): Analysis of Landform John Wiley, London.
8. Tricart J. (1972): Introduction of the Climatic Geomorphology. Longman Green.

**MARKS DISTRIBUTION:**

UNIT :-	I&II	III&VI	V	VI&VII	
MARK:-	30	30	10	30	TOTAL:- 100.

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**Gg 401 (b) Geography of Trade and Transport.**

Unit No.	Unit	Sub Unit	Periods	Marks
I	Trade	Meaning, definition and types of trade. i) Bases of trade ii) International trade flows iii) Role of various commodities in world trade – a) agricultural b) mineral ores c) industrial goods.	06	
II	World Trading Zones	i) Western Europe ii) North America iii) Latin America iv) Africa v) Australia and New Zealand	05	
III	World Trading pacts	A) i) The European Economic Community – (Common market) – EEC. ii) European free Trade Association- EFTA iii) Council of Mutual Economic Assistance COMECON iv) The Organization of Petroleum Exporting Countries – OPEC. v) Association of SE Asian Nations – ASEAN B) Salient features of India's foreign trade.	05	
IV	Geography of International Trade	i) International trade dynamics ii) Free trade initiatives a) The GATT system b) Non-tariff barriers. iii) Future prospects.	06	
V	Transport	Meaning and definition of transport. Role of transport in the development of economic region. i) Basic indices ii) Transport complex in economic region.	05	
VI	Modes of Transportation	a) Factors associated with growth of transportation. b) Development and distribution of different modes of transportation. c) Comparison of different modes of transportation. d) Ports and harbours – Definition. The study of various ports in the world. i) River ports – New York, Kolkata ii) Sea ports – Bombay, Tokyo iii) Entre ports – Singapore, Colombo.	10	
VII	Transport Network	a) Structure of network b) The location of network. c) Models of network changes – i) Gravity model ii) Taffe and Gauthier.	08	

Unit Nos.	:-	I	II	III	IV	V	VI	VII
Periods	:-	06	05	05	06	05	10	08
Marks	:-	20	10	10	20	10	20	10

**Reference Books :**

- 1) Transport Geography – Majid Husain, (editor –1994) Anmol Publications Pvt.Ltd.,New Delhi.
- 2) Economic Geography – Morgan and Pugh (1977) Methuen and Company Ltd., London.
- 3) Commercial Geography – Nimkar, Kankure and others (1989) Himalaya Publishing House, Bombay.
- 4) Location in Space – Peter Lloyd and Dicken (1972) Harper and Row Publishers, New York.  
( a theoretical approach to economic geography )
- 5) Geography of transportation – Pandey N.P.
- 6) Geography of International Trade – Taffee and Gauthier.

**Gg. 401 (C) Urban Geography**

Unit No.	Unit	Sub-Unit	Periods
I	Introduction of Urban Geography	(a) The definition, nature and scope of urban geography (b) Approaches to study the Urban Geography (c) Recent trends in Urban Geography	5
II	Urbanization	I) Meaning of Urbanization II) Geographical approaches to study the Urbanization III) Concept of Urbanization IV) Characteristics of Urbanization. V) Factors of Urban growth VI) Process of Urbanization VII) Urbanization process in modern times. VIII) Relationship between urbanization and economic development. IX) Trends of Urbanization in world and India	8
III	Urban Morphology	Morphology of the city (a) Definition (b) The city core (c) Integuments (d) Enclaves (e) Kernel (f) Characteristics and demarcation of C.B.D. (g) Morphology of Indian Urban settlements and its comparison with western urban settlements	8
IV	Urban Functions	(a) Functional base of a city – concept of basic and non basic functions. (b) Functional Zonation (c) Methods of functional classification of towns formulated by (i) H.I. Nelson (ii) C.D. Harris	5
V	Rural –Urban Fringe	A) Concept a) Meaning b) Characteristics c) Demarcation of rural urban fringe B) Sub urbanization a) Concept of Sub urbanization b) Functional types of suburbs c) Megalopolis	6

VI	Urban growth and theories	a) Central Place theory of Christaller and Losch. Theories of Peroux and Boudierille	5
VII	Urban Problems	a) Stages of development of Urban environment b) Urban Problems i) Urban environmental pollution ii) Urban sprawl iii) Scarcity of housing iv) Slum v) Provision of amenities vi) Urban crime vii) Transportation	8

**Reference Books**

1. Cities Urbanization and Urban systems By. K. Siddhartha and S. Mukharjee Kisalaya Publication Pvt. Ltd. New Delhi 30
2. Urban Geography A Text Book  
By R.B. Mandal Concept Publishing Company New Delhi 110059
3. Urban Geography By Majid Husain  
Anmol Publications Pvt. Ltd. New Delhi 110002
4. Urban Geography Edited by Harold M. Mayer and  
Clyde F. Kohn Central Book Depo Allahabad
5. India urbanization 1901-2001 Tata Mcgraw - Hill Publishing Co. Ltd. New Delhi  
by Bose Ashish
6. Million Cities of India By Misra R.P. (ed)
7. Contribution to Indian Geography Urban Geography By Mishra R.P. (ed)  
Heritage Publishing Co. New Delhi
8. Urbanization in India V.L.S. Prakash Rao Concept Publishing New Delhi
9. Urbanization in Developing Countries  
By Shah Manzoor Alam
10. Urban Geography By Tailor Griffith Matheun and co Ltd. London
11. Readings in Urban Geography by Mayer Harold H and Kohn Clyde Central Book  
Depot Allahabad
12. Indian Urbanization and planning  
By Noble A.G. and Dutt A.K. Tata Mcgraw Hill Publishing Co. Ltd. New Delhi

**Weightage:-**

UNIT :-	I&II	III	IV	V	VI	VII	
MARK:-	20	15	15	15	15	20	TOTAL:- 100

**Gg. 402 ( A ) APPLICATION OF COMUTER IN GEOGRAPHY AND G.I.S.**

UNIT NO.	UNIT	SUB-UNIT	PERIOD
I	INTRODUCTION TO COMPUTER:	1.Definition of the Computer 2.history and generations of computer. 3.types of computers 3.I/O devices 4.Binary. 5.Need and development of the Computerization in geography.	8
II	GEOGRAPHY AS A SPATIAL SCIENCE:	1.Maps and spatial information. 2.Dynamics of spatial information. 3.Elements of information Technology. 4.Geographic objects and their relations To G.I.S.	4
III	SPATIAL DATA:	1.Definition 2.Elements of spatial data. 3.Data Sources:	6



		<ul style="list-style-type: none"> <li>a) Primary</li> <li>b) Secondary</li> <li>c) Other:                         <ul style="list-style-type: none"> <li>1) Census &amp; Survey data,</li> <li>2) Aerial photographs.</li> <li>3) Satellite imageries.</li> </ul> </li> </ul> <p>9. Spatial Data Structure:</p> <ul style="list-style-type: none"> <li>a) Raster Data Structure</li> <li>b) Vector Data Structure.</li> </ul>	
IV	<b>GEOGRAPHICAL INFORMATION SYSTEM(G.I.S.):</b>	<ul style="list-style-type: none"> <li>1. Definition</li> <li>2. Computer System:                         <ul style="list-style-type: none"> <li>a) Hardware</li> <li>b) Software</li> </ul> </li> <li>3. Development of G.I.S.</li> <li>4. Fundamental Components of G.I.S.</li> <li>5. Benefits of G.I.S.</li> <li>6. Data Base:                         <ul style="list-style-type: none"> <li>a) Data Base Management System</li> <li>Data Base Model.</li> </ul> </li> </ul>	6
V	<b>G.I.S. TECHNOLOGY</b>	<ul style="list-style-type: none"> <li>1. Coordinate System:                         <ul style="list-style-type: none"> <li>a) Geographic Coordinates</li> <li>b) Universal transverse Mercator Coordinate system.</li> <li>c) Military grid coordinate system.</li> <li>d) State Plane Coordinate System.</li> <li>e) Other Systems</li> </ul> </li> <li>2. Functions of G.I.S.</li> </ul>	8
VI	<b>COMPUTER CARTOGRAPHY</b>	<ul style="list-style-type: none"> <li>1. Introduction</li> <li>2. Principles of Computer Cartography.                         <ul style="list-style-type: none"> <li>a) Vector Graphics</li> <li>b) Raster Graphics</li> <li>c) Resolution.</li> </ul> </li> <li>3. Computer Cartography hardware.                         <ul style="list-style-type: none"> <li>a) Digitizer.</li> <li>b) Joy Stick</li> <li>c) Light Pen</li> <li>d) Plotter</li> <li>e) Camera</li> </ul> </li> <li>4. Computer Cartography Software.</li> </ul>	7
VII	<b>G.I.S. APPLICATIONS:</b>	<ul style="list-style-type: none"> <li>1. Application of Computer Cartography                         <ul style="list-style-type: none"> <li>a) Topographic and Thematic Mapping.                                 <ul style="list-style-type: none"> <li>1) Capturing digital data.</li> <li>2) Use of digital data</li> </ul> </li> <li>b) Statistical Graphics</li> <li>c) Geographical information Mapping and Modeling.</li> </ul> </li> <li>3. Application of G.I.S.                         <ul style="list-style-type: none"> <li>a) Planning and management</li> <li>b) Natural Resource Management</li> <li>c) Creating Environmental Database.</li> </ul> </li> </ul>	6

**REFERENCE BOOKS:**

1. Aronoff S. (1989): Geographic Information System DDL Publication Ottawa.
2. Burrough P.A. (1986): Principles of Geographic Information System For Land Resources Assessment. Oxford University Press New York.
3. Keith C. Clarke (1999) Getting Started with geographic information system. Prentice Hall Upper Saddle River New Jersey.

4. David J. Maguire (1989) Computer in Geography. Longman Scientific and Technical New York.
5. David J. & John A. Dowson (1985) Computer Programming for Geographer Longman London
6. Date C.J. (1981) .An Introduction to Data Base System. Third edition Addison Wesley.
7. Carter J.R. (1980) Computer Mapping. Progression 80's Resource Publication in Geography. AAG. Washington.

**MARKS DISTRIBUTION:**

<b>UNIT :-</b>	<b>I</b>	<b>II</b>	<b>III</b>	<b>IV</b>	<b>V</b>	<b>VI</b>	<b>VII</b>
<b>MARK:-</b>	<b>15</b>	<b>10</b>	<b>15</b>	<b>15</b>	<b>15</b>	<b>15</b>	<b>15</b>

**Gg 402 (b) Regional Planning.**

Unit No.	Unit	Sub Unit	Periods	Marks
I	Introduction	I) Concepts and Scope a) The concept and scope of regional planning. b) Need and objectives and regional planning c) Role of Geography in regional planning d) Components of regional plan. II) Planning regions a) The concept of region b) Planning region – Objectives, Attributes & Hierarchy	04	
II	Planning Typology	I) According to levels a) Macro region planning b) Meso region planning c) Micro region planning	04	
III	Regionalization	I) Methods of demarcation of planning regions. a) Flow Analysis. b) Gravitational Analysis. II) Regional Survey a) Proposed by Geddes – Physical and Human resources. III) City region a) Delimitation of urban boundaries.	08	
IV	Planning regions of India.	I) Delineation of regions in India. a) Physiographic regions. b) Economic regions. c) Historical review. Attempts made by Dudley Stamp, Beker and Pithawala, Spate, L.S. Bhat, Nath, P. Sen Gupta, Chandrashekhar, R.P. Misra, K.V. Sundaram, Prakash Rao. Macro and Meso regions only.	10	
V	Regional development planning.	I) Area development Planning in India. a) Hilly area development b) Tribal area development c) Drought- prone area development d) River-valley area development II) Role of Growth Foci in regional development. a) Definition b) Role c) Hierarchy d) Review of previous concept e) Perroux, Boundvill, R.P. Mishra.	07	

VI	Regional Imbalances.	I) Measurement of levels of regional development in India. a) Criterion used to measure the levels. b) Levels of regional development i) Developed regions ii) Developing regions iii) Under Developed regions. II) Regional imbalances in India. a) Imbalances in natural resources. b) Imbalances in industrial development c) Imbalances in agricultural development.	07
VII	Planning for natural resources.	I) Land a) Land use survey and planning b) Land capability classification and planning. II) Water - Water conservation and planning. III) Soil - Soil conservation and planning.	05

UNIT :-	I	II	III	IV	V	VI	VII
Periods :-	04	04	05	10	07	07	05
MARK :-	10	20	10	10	20	20	10

**Reference Books**

- 1) Bhattacharya S. - Corporate Planning
- 2) Charles Whyne and Hammand - Elements of Human Geography
- 3) Kulkarni A.R. - Contributions to Regional Planning and Development.
- 4) Mehesh Chand and Puri V.K. - Regional Planning in India.
- 5) Mischael J. Bruties - The spirit and purpose of Planning.
- 6) Mishra R.P. - Regional Planning.
- 7) Noble Allen G. Dutt, Ashok K. - Indian Organization and Planning.
- 8) Noor Mohammad - Prospective in Agriculture Geography, Vol.III
- 9) Peter Self - Planning and the Urban Region.
- 10) Ronald U. Cook, - Trends in Geography, Jams H. Johnson.
- 11) K. Venkatareddy - Rural development in India.
- 12) Singh L.R. - New Perspective in Geography. Thinkers Library, Allahabad.
- 13) Sinha V.N.P. & Mandal R.V. - Dimension in Geography
- 14) Sundaram V.K. - Urban and Regional planning in India.

**Gg. 402 (C) Dissertation**

Only those students will be allowed to offer dissertation who scored more than 55 percent in all the courses of first two semester and the option of disseration at the beginning of the III<sup>rd</sup> semester. No. student who carries any back log of the courses to the III<sup>rd</sup> semester will be allowed to offer disstartation.

**Gg. 403 (A) SOIL GEOGRAPHY**

UNIT NOS	UNIT	SUB-UNIT	PERIODS
I	INTRODUCTION:	1. Evolution of Soil Concept a) Soil Concept b) Edaphological c) Pedological Approaches 2. Nature and Scope a) Soil as a Dynamic medium. Soil as a Resource.	5
II	SOIL DEVELOPMENT	1. Soil formers: a) Weathering b) Soil forming factors: Active & Passive 2. Soil forming Processes: a) Eluviation b) Illuviation c) Humification d) Laterization e) Calcification f) Salinization g) Podzolization 3. Soil Profile: Development and Characteristics of ideal soil Profile.	6
III	PROPERTIES OF SOIL	1. Physical properties of Soil: a) Morphology b) Structure c) Texture. d) Water, Air, Temperature & Colour. 2. Chemical Properties: a) Soil reaction, Soil $p^H$ and its importance b) Factors Controlling Soil Reaction.: 1) Nature of soil 2) Soil Colloids 3) Soil Solutions 4) Climate 5) Parent material 6) Soil Management. 3. Ion Exchange: Cations and Anions Exchange	8
IV	SOIL WATER:	1. Definition. 2. Sources of soil water. 3. Types of soil water. 4. Importance of soil water. 5. Soil water management.	4
V	SOIL ORGANIC MATTER & MICROORGANISMS.	1. Organic Matter a) Sources of Organic Matter b) Composition of Organic Matter. c) Composition of Organic Matter d) Decomposition of Organic Matter. e) Factors controlling Decomposition. f) Changes produced during Decomposition 2. Humus: a) Definition. b) Composition. c) Formation. d) Constitution. e) Functions f) Properties.	8

		<p>3. Soil Microorganism.</p> <p>a) Micro and Macro soil organisms.</p> <p>b) Environmental Factors influencing activity of soil microorganism:</p> <p>1) Soil Moisture</p> <p>2) Soil Temperature.</p> <p>3) Light &amp; Air.</p> <p>4) Soil reaction</p> <p>5) Food and Energy supply.</p> <p>6) Nature of the Soil.</p> <p>4. Microorganism Types:</p> <p>a) Algae. b) Fungi</p> <p>c) Actinomycets. d) Bacteria.</p> <p>e) Protozoa.</p>	
VI	SOIL TAXONOMY.	<p>1. Modern system of soil classification.</p> <p>a) Physical Classification</p> <p>b) Genetic Classification</p> <p>c) American system.</p> <p>2. Description of</p> <p>a) Zonal Soils</p> <p>b) Azonal Soils</p> <p>c) Intrazonal Soils</p>	6
VII	SOIL EROSION AND ITS CONTROLS:	<p>1. Definition.</p> <p>2. Types of Soil Erosion:</p> <p>a) Water erosion: Causes, effects and consequences</p> <p>b) Wind erosion: Causes, effects and consequences</p> <p>4. Soil degradation and Conservations</p> <p>a) Soil Pollution: Pollutants, Sources,</p> <p>b) Kind of soil Pollution:</p> <p>1) Inorganic Contamination.</p> <p>2) Organic Waste.</p> <p>3) Fertilizers and Pesticides.</p> <p>4) Other soluble salts</p> <p>5) Radio Nuclides.</p> <p>5. Soil Protection Measures.</p>	8

**REFERENCE BOOK:**

1. MILLER C.E. TURK L.M. & FORTH: Fundamentals of soil sciences  
Wiley International Library of Congress Catlog Card number 65-21451  
Printed in Japan by Tappan Company Ltd.
2. James G. Cruikshank, Soil Geography Newton Abbot, Devon
3. Sarkar Himanshu: Soil Geography. Nikhil K.D. Calcutta.
4. Daji J.A. A TextBook of Soil Science. Tata Mc Graw Hill Bombay
5. Forth Henry D: Fundamentals of Soil Science
6. Buntice B.T: Soil Geography
7. Rode A.A: Soil Science
8. Biswas T.D. & Mukharji: A TextBook of Soil Science. Tata Mc Graw Hill New Delhi.

**MARKS DISTRIBUTION:**

UNIT :-	I&II	III&IV	V&VI	VII
MARK :-	20	30	30	20

**Gg. 403 (b) Development of Modern Geography**

Unit No.	Unit	Sub-Unit	Periods
Unit I	Historical Development of Geography	(i) General Character of Geography in the Ancient & Medieval period (a) Contributions of Herodotus, Erratosthenes, Strabo and Ptolemy 0 (b) Arab Geographers.	5
Unit II	The beginning of Modern Geography	(I) General course of geographic thought upto first half of 20 <sup>th</sup> century a) Contributions of Humbold and Ritter b) Impact of Darwin's theory c) Development of 20 <sup>th</sup> century dualism between i) Physical and Human Geography i) Regional and systematic Geography	6
Unit III	The beginning of Modern Geography	a) Development of the concept of Geography i) As the study of relationships – environmental determinism, possibilism, human ecology. ii) A study of distribution iii) Study of areal differntiation b) Classification and Regionalization c) Models in Geography	7
Unit IV	Geography in the second half of the 20 <sup>th</sup> Century	i) Trends in geographic thought and methodology since the early sixties. a) Quantitative revolution b) Behavioural, humanistic and rational approaches c) Revival of ecological studies since the early seventies	5
Unit V	Recent trends in different branches of Geography	i) Progress in political historical geography ii) Cartography iii) Social and cultural geography	5
Unit VI	Recent trends in different branches of Geography	Progress in i) Geomorphology a) Post Division and contemporary geomorphology b) Pure and applied geomorphology ii) Climatology a) Climatic models of phenomena charges and cycles in climate systems b) future climate	6
Unit VII	Recent trends in different branches of Geography	Progress in i) Economic Geography a) Location of economic activities in space b) Resources appraisal & Globalization of the economy c) International trade dynamics ii) Population and settlement Geography	6
Unit VIII	Modern Techniques	i) Use of statistical technique ii) Use of computer in data analysis iii) Use of Remote sensing technique in different fields	5

Books

1.	Taylor G (1951)	Geography in the 20 <sup>th</sup> Century, Methuen & Co., London.
2.	Husain Majid (1984)	Evolution of Geographical thought - Rawat Publication, Jaipur
3.	David Harvey	Explanation in Geography
4.	Hart M.G. (1986)	Geomorphology - Pure and applied, George Allen and Unwin
5.	Hartshorn T.A. and Alexander (1988)	Economic Geography, Prentice Hall, International Inc.
6.	Hindore Oliver	Climatology
7.	Strigen E.T.	Techniques of Climatology
8.	Peter Hagget	Geography - A modern synthesis
9.	Saroj K. Pal	Statistical Technique A basic approach to geography (Mc Graw hull)
10.	Floyd Sabins	"Remote sensing - Principles and Applications" - Freeman and Co. New York.

**Gg 403 (c) Geography of Marketing.**

Unit No.	Unit	Sub Unit	Periods	Marks
I	Introduction	Nature and Scope, The core of marketing geography, Markets and marketing, primary components, locational pattern and spatial interaction, intra-market infrastructures, market areas, The concept of hierarchy, Periodicity, Consumer behaviour perception.	04	
II	Development of Marketing Systems.	a) Early history of trade b) Modern Marketing Systems c) Marketing Systems in developing countries.	05	
III	Development of Market - Place Exchange System in India.	a) Ancient period b) Medieval period c) British period d) Modern or Post-Independence period.	04	
IV	Classification, location and Morphological pattern of market.	a) Classification - Classification of market centers based on - periodicity, census status and hierarchy. b) Location - Functions in distribution chain, locational analysis, location in relation to transportation, agricultural land-use, surrounding villages, market towns as 'break-of-bulk' centers. c) Morphological Pattern - Components of market morphology, characteristics of components, types of shopping centers, The concept of land-value.	08	
V	Market - Areas, development and Planning.	a) Market areas - Delimitation of market areas - empirical methods, theoretical methods, Population as a measure of market area. b) Development and Planning - City Planning for market places, regional planning; role of market towns in regional development, Rural Market development.	08	
VI	Periodic Market-Places and Marketing	Origin of periodic markets, Spatio-temporal synchronization, market cycles, market periodicity, hierarchies, Market participants, commodity structure, site and lay out, periodic markets and rural development.	08	
VII	Fairs as Trading Institutions.	Origin of fairs, factors affecting origin and growth of fairs in India, Classification of fairs, Periodicity, Lay out, commodity structures, Merchants and business pattern, Social importance.	08	

UNIT :-	I	II	III	IV	V	VI	VII
Periods :-	04	05	04	08	08	08	08
MARK :-	20	10	10	20	20	10	10

**Reference Books :**

- 1) Arunkumar and Rachana Sharma - Marketing Management.
- 2) H.M. Saxena - Geography of Marketing.
- 3) H.M. Saxena - Rural markets and development.

**Gg 403 (d) Regional Geography of U.K.**

Unit No.	Unit	Sub Unit	Periods	Marks
I	Introduction	i) Location ii) Space relation	02	
II	Physiography	Various physiographic divisions.	06	
III	Drainage	i) Rivers and Drainage ii) Lakes	06	
IV	Climate and Soils	a) i) Characteristics ii) Factors affection climate iii) Clamatic Regions. b) Soils - i) Factors affecting soils ii) Soil types and soil region.	06	
V	Vegetation and Agricultural activities	a) Vegetation i) Characteristics ii) Types of Vegetation iii) Forest Products. c) Agricultural activities i) Agricultural regionalization ii) Types of farming iii) Means of irrigation iv) Crops v) Live Stock forming vi) Problems of agriculture	10	
VI	Mineral / Power resources and Industries	a) Mineral resources b) Power resources c) Industries i) Major industries ii) Industrial regions.	10	
VII	Transport and Trade	a) Transport i) Land Transport ii) Water transport iii) Air transport b) International Trade i) Trading Partners ii) Membership of trading blocks iii) Foreign Trade	05	

UNIT :-	I	II	III	IV	V	VI	VII
Periods :-	02	06	06	06	10	10	05
MARK :-	10	20	10	20	20	10	10



**Reference Books :**

- 1) The British Isles : A Systematic Geography – J. Wreford Watson, J.B. Sissons.
- 2) Industrial location – An Economic Geographical Analysis – David M. Smith.
- 3) World Geography, Mc Graw – John W. Morris (1972) Hill book Company.
- 4) Geography and development – Don R. Hoy (1978) . A Regional approach.

**Gg 403 (D) Geography of Australia**

Unit No.	Unit	Sub Unit	Periods	Marks
I	Introduction	i) Location ii) Space Relation	02	
II	Physiography	Various Physiographic Divisions	06	
III	Drainage	i) Rivers and Drainage ii) Lakes.	06	
IV	Climate and Soils	a) i) Characteristics ii) Factors affecting climate iii) Climatic Regions b) Soils – i) Factors affecting soils ii) Soil Types and Soil regions.	06	
V	Vegetation and Agricultural Activities	A) Vegetation i) Characteristics ii) Types of Vegetation iii) Forest Products. B) Agricultural Activities – i) Agricultural Regionalization ii) Types of farming iii) Means of Irrigation iv) Crops v) Livestock farming vi) Problems of agriculture	10	
VI	Mineral / Power Resources and Industries	a) Mineral Resources b) Power Resources c) Industries – i) Major Industries ii) Industrial Regions.	10	
VII	Transport and Trade	a) Transport – I) Land Transport II) Water Transport III) Air Transport b) International Trade – i) Trading partners ii) Membership of Trading Blocks iii) Foreign Trade	05	

<b>UNIT :-</b>	<b>I</b>	<b>II</b>	<b>III</b>	<b>IV</b>	<b>V</b>	<b>VI</b>	<b>VII</b>
<b>Periods :-</b>	<b>02</b>	<b>06</b>	<b>06</b>	<b>06</b>	<b>10</b>	<b>10</b>	<b>05</b>
<b>MARK :-</b>	<b>10</b>	<b>20</b>	<b>10</b>	<b>20</b>	<b>20</b>	<b>10</b>	<b>10</b>

**Reference Books :**

- 1) G. Taylor - Australia
- 2) C.M. Speak, ACJ Reed (1975) Developing Continents, Oxford University, Press, Bombay.
- 3) John W. Morris (1972) World Geography. Mc Graw Hill Book Company
- 4) Don R. Hoy (1978) Geography and Development- A Regional Approach- Collier Mc Millan Publisher, London.

**Gg. 404 ( A ) GEOGRAPHY OF WATERSHADE MANAGEMENT.**

UNIT NO.	UNIT	SUBUNIT	PERIODS
I	INTRODUCTION TO WATERSHADE	1. Introduction a) Definition & Concept b) Watershed as a dynamic unit c) Delineation of watershed. d) Microwatershed 2. Characteristics of watershed. 3. Global hydrological cycle 4. System Approach-General system theory	5
II	PHYSICAL PARAMETERS OF WATERSHADE:	1. Basin and Channel morphology. a) Slope b) Length & Area c) Landuse 2. Measurement and Data sources 3. Terrain Analysis.	6
III	HYDROLOGICAL PARAMETERS -1:	1. Rainfall a) Measurements b) Intensity and duration 2. Areal Precipitation. Thiessen Polygon Method. 3. Evaporation and Transpiration. a) Methods and Instrument. b) Water balance. 4. Infiltration. Methods and Instruments.	8
IV	HYDROLOGICAL PARAMETERS-2	1. Runoff. a) Measurements b) Types of gauging stations c) Hydrographs 3. Discharge(Stream flow) a) Measurements b) Types of gauging stations c) Hydrographic	8
V	HYDROLOGICAL PARAMETERS-3	Ground Water: a) Definition b) Aquifer Types. c) Water Table d) Porosity e) Storage f) Ground water Movement g) Recharge & Discharge.	4
VI	WATERSHADE DEVELOPMENT & MANAGEMENT:	1. Water management: a) Rainwater harvesting b) Runoff and Agriculture. c) Conservation in irrigation. d) Reuse of wastewater. 2. Development Programs: a) Artificial Recharge of Ground Water. b) Dams and Weirs. c) Afforestation and Cropping pattern. 3. Potential Eva-transpiration (Water Need) a) Thonthwait-Penman. b) Clinical and Soil Water Balance.	8

VII	WATERSHADE WORK PLAN:	1. Survey and Resources a) Physical b) Hydrological c) Landuse d) Resources. 2. Mapping- Landuse Capability Maps 3. Problems and Need. a) Soil Conservation b) Water Conservation c) Local Needs. 4. Management Methods.	6
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**REFERENCE BOOKS:**

1. Dadal S.S.Ullah W. S.K. (1992) Hydrological Measurements for watershed research. Jugal kishore & Co. Deharadun.
2. Valdia K.S. (1987) Environmental Geology. Tata Mc. Graw Hill.
3. Addison H. (1961). Land Water and Food. Chapman and Hall, London.
2. Chorley R.J. (1969) Introduction to Physical Hydrology. Methuen, London
3. Chorley R.J. (1967): Water Earth and Man. Methuen, London
4. Dakshinmurthy.C. (1973): Water resource of India and their utilization in agriculture. Indian Agriculture Research Institute, New Delhi
5. Jones I.J.A. Global Hydrology: Processes Resources and Environmental Management. Longman, London.
6. Toad D.K. Ground Water Hydrology.
5. Wisler: Hydrology.
6. Wilson E.M. Engineering Hydrology.

**MARK DISTRIBUTION:**

UNIT :-	I&II	III&IV	V&VI	VII	Total:- 100
MARK :-	25	35	30	10	

**Gg. 404(B) BIOGEOGRAPHY.**

UNIT NO.	UNIT	SUB-UNIT	PERIODS
I	INTRODUCTION:	1. Definition of Biogeography. 2. Nature and Scope. 3. Development of Biogeography: a) Historical b) Medieval c) Modern. 4. Field of Biogeography 5. Functions of Biogeography 6. Biosphere: a) Definition b) Limits c) Composition.	8
II	EVOLUTION AND DISTRIBUTION OF LIFE	1. Evolution of Living things a) Darwin's Theory of Organic Evolution. b) Evolutionary history of plant cover c) Origin and Evolution of Animals. 2. Factors Affecting on Distribution of Plants and Animals. a) Evolutionary Factors b) Environmental Factors c) Physiographic Factors d) Biotic Factors e) Historical factors.	6

III	PHYTOGEOGRAPHY	<ol style="list-style-type: none"> <li>1. Definition and Concepts.</li> <li>2. Plant Kingdom.                         <ol style="list-style-type: none"> <li>a) Classification of Plants</li> <li>b) Morphological Classification.</li> <li>c) Hierarchical Classification.</li> </ol> </li> <li>3. Dispersal of Plant.                         <ol style="list-style-type: none"> <li>a) Nature and Factors</li> <li>b) Dispersal of Flowering Plants.</li> <li>c) Role of Man in Dispersal of plant</li> </ol> </li> <li>4. Distribution of Plant Kingdom.                         <ol style="list-style-type: none"> <li>a) Terrestrial Plants</li> <li>b) Palaeotropical Kingdom.</li> <li>i) Neotropical Plants</li> <li>j) Boreal Plants</li> <li>k) Distribution of Aquatic Plants.</li> </ol> </li> </ol>	8
IV	ZOOGEOGRAPHY:	<ol style="list-style-type: none"> <li>1. Definition and Concepts.</li> <li>2. Zoogeographical Regions.                         <ol style="list-style-type: none"> <li>a) Wallace' Concept of Zoogeographical Regions</li> <li>b) Old World Zoogeographical Regions</li> <li>c) New World Zoogeographical Regions</li> </ol> </li> <li>4. Migration of animals                         <ol style="list-style-type: none"> <li>a) Definition</li> <li>b) Types</li> <li>c) Factors affecting animal emigrations</li> <li>d) Succession of plant and animals.</li> </ol> </li> </ol>	8
V	ANTHROPOGENIC EFFECTS:	<ol style="list-style-type: none"> <li>1. Impact of man on plants and animals</li> <li>2. Impact of Preagricultural man</li> <li>3. Impact of Domestication's</li> <li>4. Impact of Industrialization and Urbanization's.</li> </ol>	5
VI	EXTINCTIONS OF PLANTS AND ANIMALS.	Causes and Consequences of Plant and Animal Species Extinction.	5
VII	MANAGEMENT AND CONSERVATION	Present Status of plants and animals <ol style="list-style-type: none"> <li>a) Forest</li> <li>b) Wild life.</li> <li>c) Wild life Management in India.</li> </ol>	5

**REFERENCE BOOK:**

1. Mathur H.S.: Biogeography.
2. Bharucha F.R. Plant Geography.
3. Taylor J.A. Themes in Biogeography.
4. Agrawal. Animal Ecology and distribution of animal
5. Darlington P.J (1978). Zoogeography. John Wiley New York.
6. Mathur H.S. Fundamentals of Biogeography Rawat Publication New Delhi.
7. Turk & Turk Biogeography. Duckworth, London.
8. Simmon T.G. Biogeography Natural Cultural. Arnold Heinemann. London.
9. New Begin Biogeography.

**MARKS DISTRIBUTION:**

UNIT	:-	I	II	III	IV	V	VI	VII
MARKS	:-	10	20	20	15	15	10	10

**Gg 404 (c) Geography of Tourism.**

Unit No.	Unit	Sub Unit	Periods	Marks
I	Introduction	i) Meaning of tourism, Definition of tourism ii) Nature of Scope of Geography of tourism iii) Geography of tourism as an applied Geography	04	
II	The growth of tourism	i) Growth through ages. Early travel. The grand tour. The origin of the concept of annual holiday. Industrial revolution and development of travel. The growth of sea side resorts. Paid holidays and mass tourism. Effects of the Great war on transport systems. Advent of the the Jet. Advent of the high speed trains. ii) Evolution of Demand of tourism. Leisure. Affluence. Mobility. Present day factors.	08	
III	The Elements of Tourism	i) The Basic Components (a) Locate - Geographical components, Peters inventory of tourism attraction (b) Transport (c) Accomodation. ii) Elements of Tourism - Good weather, Sceneray, Amenities, Accessibility, Accommodation, Historical, and cultural factors, other factors.	08	
IV	The measurement of Tourism	i) Need for measuring tourism phenomenon. ii) Importance of tourism Statistics iii) Defination of the term Tourist. Definition by Legue of Nation and United Nations. iv) General problems of measurement of tourism. v) Types of tourism Statistics vi) Methods of measurement.	06	
V	Impact of Tourism	i) Economic Impact of tourism. The multiplier effect. Employment Generation, Income generation, Foreign Exchange Earnings. ii) Social Cultural Impacts. iii) Environmental Impact - Impact on water, Atmosphere, Vegetation, Human settlement, Monuments and Wild life. iv) Manila Declaration on world tourism.	06	
VI	Tourism in India.	i) The land for all seasons ii) Development of Tourism in India iii) The Sargeant Committee iv) Tourism information offices v) Formation of the ministry of tourism vi) Setting up the department of tourism vii) Growth of tourism since Independence viii) Trade of India tourism development Corporation (ITDC) ix) International Organisations of tourism. x) International union of official travel organization (IUOTO) xi) World Tourism Organisation (WTO) xii) Pacific Area Travel Association (PATA)	08	
VII	Important Tourist Centres in India	a) Hill Stations - Darjeeling, Mahabaleshwar b) Historical Centres- Agra, Daulatabad. c) Caves - Ajanta, Ellora d) Religious - Tirupati, Pandharpur	05	

UNIT :-	I	II	III	IV	V	VI	VII
Periods :-	04	08	08	06	06	08	05
MARK :-	20	20	10	10	10	20	10

**Reference Books :**

- 1) Bhatia A.K. (1983) : Tourism Development Principles & Practice. Sterling Publications Pvt. Ltd., New Delhi.
- 2) H. robinson (1978) : Geography of Tourism. M.C. Donald & Evans.
- 3) Selvam M. : Tourism Industry in India, Himalaya Publishing House, Bombay.
- 4) P.N. Seth (1978) : Successful tourism Planning & Management. Cross Section Publications, New Delhi.

**Gg. 404 (D) Research Methodology in Geography**

Unit No.	Unit	Sub-Unit	Periods
I	Introduction	A) Nature and status of Geography i) Global perspective ii) Indian perspective B) Changing paradigms in Geography i) Germany ii) Britain iii) Anglo-America C) Recent development in phylosophy and theory in geography i) Phylosophy of Geography ii) Development of theories in Geography	5
II	Nature and Trends In Geographical studies	i) Regional Geography ii) Development studies iii) Environmental studies iv) Area – studies v) Behavioral studies vi) Case studies vii) Diagnostic studies	7
III	Nature and Base of Research	i) Types of Research ii) Geographical methods and its relation to scientific method and regional method Concept and basis of Region and Regionalisation	5
IV	Research Design	i) Identification – selection and defination of the problem. ii) Preparation of Bibliography and consulation of Records Books and Journals iii) Hypothesis Formation and construction of schedule / questionaries iv) Sampling Design	6
V	Field Techniques and Data Collection	i) Collection of Secondary Data and Information ii) Collection of Primary Data and field work iii) Acquisition of non-visible Information iv) Field study and Geographical surveys v) Formulation of field Research Design Field Exercises and their characteristics	6
VI	Processing and Analysis of Data	i) Development of classification system ii) Measure of central tendency, Dispersion and Association iv) Desirable Applications of Quantitative – Measures in Geographical Analysis v) Measure in Geographical Analysis. vi) Types of graphs	6

VII	Preparation of Research Report	i) Organisation of Report Writing ii) Mapping Techniques for the processed data. iii) Organisation and General format of the Thesis iv) Review and Evaluation of Thesis.	10
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Books -

1.	Research Methods and Techniques in Geography By Har Prasad Rawat Publications, Jaipur.
2.	Research Methodology in Social Sciences By Sadhu Singh Himalaya Publishing House Mumbai 400004
3.	Statistical Methods in Geographical studies By Aslam Mahmood, Prof. Moonis Raza. Rajesh Publications New Delhi 110002
4.	Quantitative Techniques in Geography Hammond and Mc. Gullah (1774) Clarendon Press, Oxford.

Weightage

Unit No.	:-	I&II	III	IV	V	VI	VII	
Marks	:-	20	20	15	15	15	15	Total:- 100

**Gg. 405 SURVEYING AND EXCURSION.**

UNIT NO.	UNIT	SUB-UNIT	PERIODS
I	INTRODUCTION:	1. Definition of Surveying. 2. Objectives of Surveying. 3. Uses of Surveying 4. Principles of Surveying. 5. Types of Surveying: a) Plane Survey b) Geodetic Survey.	4
II	LEVELING :	1. Definition and Terminology. a) Level Surface b) Line of Collimation c) Vertical Line d) Datum Surface e) Reduced Level. f) Bench Marks and Its Types: 2. Dumpy Level: a) Components b) Line of Sight. c) Bubble tube axis d) Leveling Staff and its types. 3. Levelling Terminology: a) Foresight Reading b) Backsight Readings c) Intersight Readings d) Change Point e) Collimation Height	6
III	FIELD SURVEY WITH DUMPY LEVEL:	1. Field Survey a) Block Contouring b) Road or River Profile 2. Field Book Record with Methods: a) Collimation Method b) Rise and Fall Method 3. Drawings: a) Profile drawing b) Block contours drawings.	8

IV	TRANSIT THEODOLITE:	1. Definition and Types. 2. Anatomy of Transit Theodolite. 3. Component Parts of theodolite and their functions 4. Technical Terms Used in theodolite surveying.	4
V	FIELD SURVEY WITH TRANSIT THEODOLITE.	1. Temporary adjustment of Theodolite. 2. Measurements of Horizontal angles by a) Repetition method. b) Reiteration method. 3. Measurements of Measurements of by Vertical angles. 4. Traverse Survey with Theodolite. a) Traversing by the included angle method. b) Traversing by direct angle method. 5. Tacheometry. a) Definition b) Stadia c) Tacheometric constants 6. Tacheometric Surveying Methods : A) Stadia Method: a) Fixed Hair Method. b) Movable Hair Method. c) Tangential Method.	10
VI	INDIAN PATTERN CLINOMETER:	1. Structure of Indian Pattern Clinometer 2. Use of Instrument 3. Measurement of the Angle of Elevation and Depression. (Use of Correction for Curvature And refraction.)	4
VII	EXCURSION:	1. Student should visit any place of Geographical Importance. 2. Write a geographical Report of the Visit Places with respect to the following points (With Maps, Charts, Diagrams and Photographs.) a) Location, Extent and Area: b) Physiography (Relief, Structure Slope, and drainage c) Climate d) Natural vegetation e) Soil f) Agriculture g) Industries i) Settlement j) Means of communication and Transportation Or As per their Specialization Subject.	9

**REFERENCE BOOKS:**

1. Kanitkar and Kulkarni: Surveying and Leveling Vol. 1 & 2.
2. Gajare V.S. (1996) Surveying (Part 1 & 2) Nirali Prakashan. Pune.
3. KISSAM Surveying for Civil Engineers.
4. Knight B.H. Surveying and Leveling for Students
5. Reymond : Tacheometric Tables
6. Clendinning J. Principles and use of survey instruments

**MARK DISTRIBUTION:**

UNIT :-	I	II	III	IV	V	VI	VII
MARKS :-	05	10	20	10	25	10	10

**Journal and Viva Voce: 10 Marks**

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