

**NORTH MAHARASHTRA UNIVERSITY,  
JALGAON**

**M.A./M. Sc.  
GEOGRAPHY**

**SEMESTER III<sup>rd</sup> AND IV<sup>th</sup>**

**NEW SYLLABI  
40-60 Patterns**

**WITH EFFECT FROM**

**JUNE 2016**

## M.A./ M. Sc. GEOGRAPHY

### JOB OPPORTUNITY

Geography has wide range of applications in fields like transportation, environmental sciences, airline route and shipping route planning, civil services, cartography (map making), satellite technology, population council, meteorology departments, education, disaster management are some of the careers one can opt for. The job role as well as nature of work varies depending upon the job profile. Some of the popular opportunities within the field of geography in India include— economical geography, cultural geography, political geography, historical geography, tourism geography, regional geography, and climatology and so on. One can specialise in related fields and become a geographer.

- 1) **Govt Department;** A geographer can avail job opportunities in government departments (like planning and developmental commissions, forestry, environmental, and disaster management departments etc), travel agencies, manufacturing firms, text book and map publishers, media agencies, etc.
- 2) **Cartographer:** Many people choose to work as a cartographer who is a person with extensive knowledge about maps and is involved in making maps, charts, globes, and models of Earth and other planets.
- 3) **Surveyor:** Many others with a degree in geography also opt to work as a surveyor. A surveyor is the person who is involved in measuring the surface of land, distance between two places through mathematical calculations. Their job involves lot of on the field work and is majorly recruited by state and central survey departments, construction companies and so on. At SY and TY level Plane Table Survey, GPS Surveys are included in the syllabus. Many posts of surveyors are vacant in private sector and Govt department of survey.

**4) GPS Surveyors:** In recent days even the fields of GIS as well as Remote Sensing are providing job opportunities to people with the educational background in geography and related specialisations. And not to forget the management of the lifelines of most modes of transport that occurs via travel and tourism wherein people with a background in geography are often recruited (along with the required certifications) as tour operators, itinerary planners, tour guides and so on. Also those with PhD or relevant master's can also opt to teach the subject at school, college or masters level or may be involved in developing educational content for the relevant subject.

Indeed, it is correctly said that geography is everywhere and opens our eyes to the world we live in, and so for those curious souls who love to know more and explore about the earth, the road towards geography may lead you to your final destination! Get going...

**5) GIS and Remote Sensing Fields:** Geography as a career provides multiple job options. With the increased use of satellite technology and Geographical Information System, geography is becoming a more promising career option than it was ever before. The GIS is a computer based information system which is used to digitally represent and analyse the geographic features present on the earth surface.

**6) Geographers provide their services in diverse fields.** There are comparatively few geographers so they are in high demand at national and international level. The remuneration depends on the potential, experience, seniority and type of organisation. Generally private companies pay awesome wage along with other benefits, when compared with the government and public organisation. In the field of geography, a qualified person can expect a starting salary somewhere around Rs. 15,000 - 25,000 per month. The senior persons in private sector may

draw more than Rs.1,20, 000 per month. Consultants also get attractive consultancy fees.

- 7) **Drafter:** He/she associate closely with engineers and architectures. It involves planning, housing and development projects in terms of their location and utilization.
- 8) **Government employer:** Central government agencies employ geographers for mapping, intelligence work and remote sensing interpretation. State and local governments employ geographers on planning and development commissions.
- 9) **Urban and regional planner:** Concerned with planning, housing and Development projects with respect to their location and utilization of available land-space.
- 10) **GIS specialist:** City governments, county agencies and other government agencies and private groups are often in need of experienced GIS professionals.
- 11) **Climatologist:** Agencies viz. National Weather Service, news media, the Weather Channel and other government entities occasionally need climatologist. A geographer with experience and vast coursework in meteorology and climatology serves as the best climatologist.
- 12) **Transportation manager:** The regional transit authorities or shipping, logistics and transportation companies requires in transportation geography.
- 13) **Environmental Manager:** The environmental assessment, clean-up and management companies require a geographer for environmental impact reports. It's often a wide-open field with tremendous growth opportunities.
- 14) **Science (Geography) writer:** One can serve as a science writer or a travel writer for a magazine or newspaper.
- 15) **Researcher:** Many Government and non-government institutes along with research centres offers several career options for qualified geographers with numerous specializations.
- 16) **Teacher/Professor:** The college teachers, school teachers and university teacher. Depending upon the experience and degrees obtained.

- 17) **Demographer:** In government and research organizations.
  - 18) **Government officer:** Geographical Survey of India/State and Central government provides job opportunities.
  - 19) **Careers in Indian Navy:** The Indian Navy is the seventh largest in the world and is a well knit, cohesive fighting force with tri dimensional capabilities. The Indian Navy provides you all the training you need and help you make the most of what you have your talents, your skills, your spirit and your aspirations. You get very challenging job and get chance to travel widely.
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# **New Syllabus of M.A./ M. Sc. Geography**

**W.E.F June 2016**

## **Semester - III**

- Gg 301(A): Regional Geography of U.S.A **OR**
- Gg 301(B) Regional Geography of China
- Gg 302: Environmental Geography
- Gg 303: Geographical Information System
- Gg 304: Watershed Management & Planning
- Gg 305: Practical of Physical Geography with the help of G.I.S

## **Semester - IV**

- Gg 401: (A) Fluvial Geomorphology  
OR  
(B) Industrial Geography  
OR  
(C) Geography of Rural Settlements
- Gg 402: (A) Tropical Geomorphology  
OR  
(B) Geography of Trade & Transportation  
OR  
(C) Urban Geography
- Gg. 403: (A) Research Methodology  
OR  
Gg. 403: (B) Dissertation
- Gg 404: (A) Geography of Tourism  
OR  
Gg. 404: (B) Coastal Geomorphology  
OR  
Gg. 404: (C) Agricultural Geography
- Gg. 405: Interpretation of Topographical Maps, Aerial Photographs, Satellite Imageries & Surveying

**NORTH MAHARASHTRA UNIVERSITY, JALGAON**  
**New Syllabus of M.A./M. Sc. Geography**

**SEMISTER – III**

**Gg. 301 (A) : REGIONAL GEOGRAPHY OF U.S.A.**

**(With effect from June 2016)**

**Aims & Objectives:**

USA and China are developed countries, while India is an emerging country. Hence main objective of this course is to enhance the knowledge of geography students about Developed countries.

Unit No	Unit	Sub Unit	Periods
1	Introduction to U.S.A.	i) Location. ii) Geostrategic Importance. iii) Characteristics of size.	04
2	Physiography of U.S.A.	i) Major physiographic regions & their characteristics. ii) Geology. iii) Drainage.	08
3	Climate	i) Distribution of rainfall & Temperature. ii) Climatic classification. iii) Thunderstorms. iv) Tornadoes. v) Hurricanes.	08
4	Soils & Vegetation	a) Types of Soil & Distribution b) Types Vegetation & Distribution c) Problems of Soil Erosion	08
5	Natural Resources	i) Resources appraisal. ii) Water & Land resources	08
6	Energy and Mineral Resources	i) Distribution, export and import of following Energy and Mineral Resources. a) Iron ore b) Coal c) Petroleum	08
7	Agricultural	i) Agricultural activities: ii) Agricultural patterns iii) Agricultural regions, iv) Problem & prospects.	08
8	Important Issues	1. Role of national and international policies in the development of USA 2. Membership of varies military, political and economic international organization 3. USA and India relationship (political, economic education and tourism)	08

**Question Paper Pattern: (Students will solve five questions out of seven questions)**

**Each question carry ----12 Marks (06 marks for A and 06 Marks for B)**

**Reference Books**

1. Charles B. Hunt ( 1967) : Physiography of the Unites States.
2. George T.Miller and Parkins B. Hudgis : Geography of North America.
3. John Fraser Hart (1972) : Regions of the Unites States.
4. G.H.Dary and Mathieacu (1970) : United sStates and Canada.
5. E.S.Shaw and Farland J.M. (1959) : Anglo America- Regional Geography.
6. LOngdon , C.Foscue (1954) : Regional Geography of Anglo- America.
7. J.W.Watson (1982) : The United States.

<b>Topic</b>	<b>Marks</b>
1	12
2	12
3	12
4	12
5	12
6	12
7	12
8	12
<b>Internal</b>	<b>40</b>
<b>External</b>	<b>60</b>
Total Marks	100

**North Maharashtra University, Jalgaon**  
New Syllabus of M.A./M. Sc. Geography  
**SEMISTER – III**

**Gg. 301 (B) : REGIONAL GEOGRAPHY OF CHINA**

**(With effect from June 2016)**

**Aims & Objectives:**

USA and China are developed countries, while India is an emerging country. Hence main objective of this course is to enhance the knowledge of geography students about Developed countries.

<b>Unit</b>	<b>Unit</b>	<b>Sub Unit</b>	<b>Periods</b>
1	Introduction	1. Geographical Location & Significance 2. Geostrategic Importance 3. Salient Features of Geological structure of China	4
2	Physiographic and Drainage	1. Physiographic Division 2. Characteristics of river 3. River flowing to pacific	8



3	Climate	1. Climate types and regional variation 2. Factor affecting on climate 3. Major Climatic region of china	8
4	Soils and Natural Vegetation	1. Major soil types of China 2. Types, Distribution and Importance 3. China national forests policy & social forestry	8
5	Agriculture	1. Major types of agriculture in china 2. Salient features of agriculture 3. Problems related to agriculture 4. Factors affecting agriculture of china	8
6	Minerals and Power Resource	1. Mineral resources 2. Energy resources 3. Water and Land resources 4. Resources Appraisal	6
7	Industries	1. Factors affecting industrial development in china 2. Industrial regions 3. Major industries- I.T., Electronic industries, and Automobile	6
8	Population , Settlements & Important Issues	1. Characteristics of Population, Government Policies and Problems 2. Growth & distribution of settlement 3. Problems of urban areas with reference to million city's <b>Important Issues:</b> 1. Role of national and international policies in the development of china 2. Membership of varies military, political and economic international organization	12

**Question Paper Pattern: (Students will solve five questions out of seven questions)**

**Each question carry ----12 Marks (06 marks for A and 06 Marks for B)**

Topic	Marks
1	12
2	12
3	12
4	12
5	12
6	12
7	12
8	12
<b>Internal</b>	<b>40</b>
<b>External</b>	<b>60</b>
Total Marks	100

**Reference Books:-**

1. Bailey, A. (2007): China: People, Place, Culture, History, D.K. Publ., Kindersley.
2. Leeming, F.A. (1993): The Changing Geography of China, John Wiley & Sons, U.S.A.

3. National Geographic Society, (1982): A Portrayal of the Geographical and Human Diversity in China, National Geographic Society, U.S.A.
  4. Veeck, G., Pannel, C.W., and Smith, C.J. (2011): China's Geography: Globalization and the Dynamics of Political, Economic and Social Change (2nd Edition), Rowman & Littlefield, U.S.A.
  5. Zhao, S., (1994): Geography of China: Environment, Resources, Population and Development, John Wiley & Sons, U.S.A.
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**North Maharashtra University, Jalgoan**  
**MA/M.Sc. Geography**

Semester III

**Gg302: Environmental Geography**

**W.E. F. June 2016**

**Aims and Objectives -**

1. To create an awareness among the students on environmental problems.
2. To make aware about the proper judicious use of resources
3. To develop the sense of responsibility amongst students about the environment.

Unit	Topic	Sub Topic	Period
1	<b>Introduction</b>	a) Meaning of Environment. b) Structure and Types of Environment. c) Components of Environment. d) Geography and Environment. e) Man's interaction with Environment	04
2	<b>Nature &amp; Scope of Environmental Geography</b>	a) Definition of Environmental Geography. b) Scope of Environmental Geography. c) Fundamental concepts in Environmental Geography d) Interdisciplinary Science. e) Various approaches to the study: i) Environmental Deterministic Approach ii) Teleological Approach iii) Possibility Approach iv) Economic Deterministic Approach	06
3	<b>Ecosystem</b>	a) Introduction b) Objectives c) Biosphere, Biome & Community Components of Ecosystem.	08

		d) Species diversity within an Ecosystem e) Energy in Ecosystem f) Laws governing Energy flow, Flow of Energy. g) Food chain & food web, Pyramids, Biomagnifications. h) Ecosystem mineral cycling. I) Succession and wilderness.	
4	<b>Biodiversity</b>	a) Definition & types of Biodiversity. b) Biodiversity and its conservation. c) Preservation & conservation of the ecosystem through resource management	06
5	<b>Environmental Global Problems</b>	a) Deforestation b) Desertification c) Depletion of Ozone d) Global Warming e) La-Nina & El Neno	06
6	<b>Environmental Legislation Laws &amp; Acts</b>	a) The Stockholm Conference 05 b) The Earth Summit c) Environmental laws in India: The Wild life Act, Water Act, Forest Act, Environmental Protection Act & National Environmental Tribunal Act	08
7	<b>Environmental Planning &amp; Management</b>	a) Concept and Approaches b) Need of Resource Management c) Environmental Audit	08
8	<b>Climatic Changes and Effects</b>	a) Meaning and Concept b) Scale Dimension c) Indicators of Climatic Changes d) Reconstruction of Climochronology <b>Causes:</b> Causes of climatic changes & Theories of Climatic changes: i) Atmospheric Dust Hypothesis. ii) Carbon Dioxide Theory. <b>Effects:</b> 1) Effect of climatic changes on Human Health 2) Effect of climatic changes on Agriculture 3) Effect of climatic changes on wild life	14

**Question Paper Pattern: (Students will solve five questions out of seven questions)**

**Each question carry ----12 Marks (06 marks for A and 06 Marks for B)**

#### Weight age of Marks

Topic	Marks
1	12
2	12
3	12
4	12

5	12
6	12
7	12
8	12
<b>Internal</b>	<b>40</b>
<b>External</b>	<b>60</b>
Total Marks	100

**Books:-**

- 1) Daniel B. Botkin and Edward A. Keller (1982): "Environmental Studies". Charles E. Merrill Publishing Comp., A Bell & Howell Comp., London.
  - 2) Savindar Sing (1997): "Environmental Geography", Prayag Bhawan, Allahabad.
  - 3) Jonnathun Turk and Turk ( ) "Environmental Science", Witness & Witness, London
  - 4) Jonnathun Turk and Turk ( ) "Introduction to Environmental Studies",
  - 5) Nebet: Environmental Science:
  - 6) William M. Marsh and John M. Grossa, JR. (1996): "Environmental Geography", John Wiley and Sons, New York.
  - 7) Biogeography : Newbegin
  - 8) Girish Chopra (2006): "Environmental Geography", Commonwealth, New Delhi.
  - 9) Centre for Science and Environment, New Delhi: "The State of India's Environment, 1984-85".
  - 10) Kevin J Gaston and John I Spicer (2004): "Biodiversity : An Introduction", Blackwell Publishing.
  - 11) Noel De Neveys: "Air Pollution control Engineering", Mc Graw hill, International edition civil Engineering Series
  - 12) R. Kumar: "Environmental Pollution & Health", Ashish Publication, 818 Punjabi Bag, New Delhi
  - 13) C. N. Mehta (1991): "Environmental Protection & Laws",
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**North Maharashtra University, Jalgaon**  
**MA/M.Sc. Geography**

**Semester III**

**Gg. 303: GEOGRAPHICAL INFORMATION SYSTEM**

**W.E. F. June 2016**

**Aims and Objectives:**

- 1) GIS is advance subject, introduced in all branches and disciplines. This is a tool of geography students. But it is becoming an important tool of engineers, scientists and planners. To acquaint the students of geography GIS Theory course and GIS Practicals are introduced.
- 2) To develop and to qualify the students in advance world.
- 3) To create job opportunities.

Unit	Topic	Sub Topic	Periods
1	<b>Introduction to GIS</b>	a. Basics of GIS and Definition, b. Potential of GIS, c. Concept of Space & Time, d. Objectives of GIS, e. Elements of GIS, f. GIS tasks-input, g. History of GIS, h. GIS Applications.	08
2	<b>Spatial Data Model</b>	<b>A) Spatial Data Model:</b> <b>a ) Raster Data Model:</b> Simple Raster Arrays, Hierarchical Raster Structures Types of Raster GIS Models, Compact Raster Data Models <b>b ) Vector Data Model :</b> Spaghetti Model, Topological Models, Shape File Compact Vector Data Models <b>c) Comparison of Raster and Vector Models</b>	08
3	<b>Non-Spatial Data Model:</b>	<b>Non-Spatial Data Model:</b> a) Data Base Management Systems b) GIS Data File Management c) Database Models d) Storage of GIS Data e) Object Based Data Models	08
4	<b>Geospatial Analysis &amp; Database Query</b>	a. Introduction b. Geospatial data analysis c. Integration and Modeling of spatial data d. Geospatial data analysis methods Database Query : 1. Vector Data Query 2. Raster Data Query	08
5	<b>GIS Data Analysis</b>	a. Geospatial Measurements b. Overlay operations c. Network Analysis d. Surface Analysis e. Geo-statistics f. Geo-visualization	08
6	<b>Concept of Map, Coordinate Systems</b>	a. Introduction and meaning of Map, Coordinate System and Projection b. Orientation, Scale, Detail, Accuracy and resolution of map d. Classification map e. Coordinate System	10
7	<b>Map Projection</b>	a. Introduction to Map Projection, b. Types of Projection c. Uses	04
8	<b>Application of GIS</b>	a. Application of GIS in Agriculture b. Application of GIS in Population	06

		Geography c. Application of GIS in Watershed Planning d. Land use Planning	
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Topic	Marks
1	12
2	12
3	12
4	12
5	12
6	12
7	12
8	12
<b>Internal</b>	<b>40</b>
<b>External</b>	<b>60</b>
Total Marks	100

**Question Paper Pattern: (Students will solve five questions out of seven questions)**  
**Each question carry ----12 Marks (06 marks for A and 06 Marks for B)**

**Reference Books:**

1. Kang- tsung – Chang: “Introduction to Geographical Information System”, 2002, McGraw Hill.
2. George Joseph : “Fundamentals of Remote Sensing”, 2004, University Press Pvt. Ltd.Hyderabad
3. J.R. Jensen: “Remote Sensing of Environment”, An Earth Resource Perspective, 2003, Pearson Education Pvt. Ltd. New Delhi.
4. Lillesand T.M. & Kiefer R.W. 2002, “Remote Sensing and Image Interpretation”, John Wiley and Sons New Delhi.
5. P.A. Burrough & R.A. McDonnell: “Principles of Geographical Information System”,2000 Oxford University Press.
6. C.P.Lo & Albert K.W.Yeung: “Concepts and techniques of Geographic Information System”, 2002, Prentice Hall, India.
7. Paul A. Lonfley, Michel F. Goodchild, D.J.Maguire & D.W. Rhind: “Introduction of Geographic Information Systems and Science”, 2002, John Wiley & Sons Lt.
8. Chanda B. Dattaa D., Mujumdar : Digital Image Processing and Analysis ,Prentice- Hall of India 2001.
9. Prithvish Nag and M. Kudrat : Digital Remote Sensing , Concept PublishingC o. New Delhi-1998.
10. Roy P.S. : Geographical Information Science Vol. I , IIRS 2000.
11. Demers M.N. : Fundamentals of Geographic Information Systems 2nd ed.,
12. JohnWiley & Sons: Introduction to Geographic Information System and Science, (2002) .
13. Basudeb Bhatta. : Remote Sensing and GIS, 2nd ed., Oxford university press, Printed by-Radha press, Delhi, 110031.
14. M. Anji Reddy.: Text book of Remote Sensing and GIS, 3rd ed., BS Publications, Hyderabad-72.



**North Maharashtra University, Jalgaon**  
MA/M.Sc. Geography New Syllabus

**Semester III**

**Gg 304: WATERSHED MANAGEMENT & PLANNING**

**W.E. F. June 2016**

**Aims and Objectives:**

- 1) This course is introduced to prepare the students for better planning of watershed.
- 2) Watershed planning and management is easy and authentic with the help of GIS and Remote Sensing techniques.
- 3) To develop the PG students for research and planning, this course is introduced.
- 4) Number of job opportunities are available for the students of geography in the field of GIS, RS and watershed planning department.

Unit	Topic	Sub Topic	Period
1	Introduction To Watershed	A) Concept of Watershed. B) Significance of Watershed Development. C) Demarcation of Watershed D) Types of Watershed according to area and shape	6
2	Physical parameters of watershed	A) Channel geometry & basin morphology. a) Hydraulic geometry at channel cross section & along the channel. b) Channel cross section pattern. c) Channel types. B) Basin morphology. a) Drainage network & watershed boundary. b) Drainage frequency, drainage density & constant of channel maintenance. c) Basin morphology. i) Horton's form factor. ii) Millar's circularity ratio. iii) Schumm's elongation ratio. iv) Stralher's ruggedness index. v) Stralher's hypsometric integral.	8
3	Physical parameters of the watershed II	A) Landuse: a) Measurement & data sources. b) Use of land: i) Total geographical area. ii) Area under forest. iii) Area under agricultural. iv) Area under cultural waste. v) Area under natural waste. B) Terrain analysis: a) Terrain analysis on the basis of - i) Relief characteristics. ii) Slope.	8

		<ul style="list-style-type: none"> <li>iii) Dissection index.</li> <li>iv) Drainage characteristics: <ul style="list-style-type: none"> <li>a) Spatial distribution of drainage frequency.</li> <li>b) Spatial distribution of Drainage density</li> </ul> </li> <li>v) Soil</li> </ul>	
4	Hydrological parameters I	<ul style="list-style-type: none"> <li>A) Rainfall: <ul style="list-style-type: none"> <li>a) Intensity &amp; duration.</li> <li>b) Measurements.</li> </ul> </li> <li>B) Aerial precipitation: <ul style="list-style-type: none"> <li>a) Thiessen polygons.</li> <li>b) Isohytal method.</li> </ul> </li> <li>C) Evaporation &amp; transpiration: <ul style="list-style-type: none"> <li>a) Methods.</li> <li>b) Instruments.</li> </ul> </li> <li>D) Infiltration: <ul style="list-style-type: none"> <li>a) Methods.</li> <li>b) Instruments</li> </ul> </li> </ul>	8
5	Hydrological parameters II	<ul style="list-style-type: none"> <li>A) Run off: <ul style="list-style-type: none"> <li>a) Measurement</li> <li>b) Selection, criteria of gouging station.</li> </ul> </li> <li>B) Discharge: <ul style="list-style-type: none"> <li>a) Measurements</li> <li>b) Unit hydrograph</li> </ul> </li> </ul>	8
6	Ground Water	<ul style="list-style-type: none"> <li>A) Definition</li> <li>B) Aquifer types</li> <li>C) Water table</li> <li>D) Porosity</li> <li>E) Ground water movement</li> <li>F) Recharge &amp; discharge</li> </ul>	8
7	Watershed Development & Planning	<ul style="list-style-type: none"> <li>A) Water management: <ul style="list-style-type: none"> <li>a) Rainwater harvesting.</li> <li>b) Percolation tanks &amp; pits.</li> <li>c) Sprinkle irrigation.</li> </ul> </li> <li>B) Development programmes: <ul style="list-style-type: none"> <li>a) Artificial recharge of ground water.</li> <li>b) Dams &amp; weirs.</li> <li>c) Interlinking of rivers.</li> </ul> </li> </ul>	8
8	Sample of Watershed Management and Planning	<ul style="list-style-type: none"> <li>A) Types of Survey for watershed development <ul style="list-style-type: none"> <li>i) Physical survey</li> <li>ii) Hydrological</li> <li>iii) Land use</li> <li>iv) Survey of Resources</li> </ul> </li> <li>B) Advance Techniques for watershed development <ul style="list-style-type: none"> <li>i) Remote sensing data analysis</li> <li>ii) Application of GIS software</li> </ul> </li> </ul>	6

Topic	Marks
1	12
2	12
3	12



4	12
5	12
6	12
7	12
8	12
<b>Internal</b>	<b>40</b>
<b>External</b>	<b>60</b>
Total Marks	100

**Question Paper Pattern: (Students will solve five questions out of seven questions)**

**Each question carry ----12 Marks (06 marks for A and 06 Marks for B)**

**Reference Books**

1. Murthy J.V.S. (1994) : Watershed Management in India, Wiley Eastern Ltd. New Delhi.
2. Paranjape S. and Other (1998) : Water based Development, Bharat Gyan Vigyan Samithi, New Delhi.
3. Mutreja K.N. (1990) : Applied Hydrology, Tata Mc Graw Hill Pub. Co. Ltd. New Delhi.
4. Shing R.J. (2000) : Watershed planning and Management, Yash Publishing House, Bikaner.
5. Chanda B. , Dattaa D., Mujumdar : Digital Image Processing and Analysis, Prentice- Hall of India 2001.
6. Prithvish Nag and M. Kudrat : Digital Remote Sensing , Concept Publishing Co. New Delhi-1998.
7. Basudeb Bhatta. : Remote Sensing and GIS, 2nd ed., Oxford university press, Printed by-Radha press, Delhi, 110031.
13. M. Anji Reddy.: Text book of Remote Sensing and GIS, 3rd Ed., BS Publications, Hydrabad-72



**North Maharashtra University, Jalgaon**  
MA/M.Sc. Geography New Syllabus

**Semester III**

**Gg. 305: PRACTICAL OF PHYSICAL GEOGRAPHY WITH THE HELP OF G.I.S**

**W.E. F. June 2016**

**Aims and Objectives:**

- 1) This course is introduced to prepare the students for better planning.
- 2) GIS and Remote Sensing are the vent of many job opportunities.
- 3) To develop the PG students for research and planning, this course is introduced.

Unit	Topic	Sub Topic	Period
1	Introduction to GIS softwares	A) Types of GIS softwares and their applications for different purposes. B) Introduction to GIS software selected for the practical and its significance i) Introduction to Menus ii) Tools iii) Page layout and setting iv) Scanning Image, Import of image in the software	06
2	<b>Image Registration</b>	A) Creating Co-ordinate system i) Projection ii) Coordinate System iii) UTM Zone B) Geo Referencing of Image i) Conversion of Geographical Co-ordinate ii) GCP Tool	04
3	<b>Topology</b>	A) Introduction of Topology B) Types of Topology C) Creating a Layer of Topology i) Point ii) Line iii) Polygon	06
4	<b>Non-Spatial data (Numerical Data Management)</b>	A) Creation of Table B) Table attachment to map	06
5	<b>Map Generation</b>	A) Slope Map a. Absolute Relief b. Relative Relief c. Wentworth's Method of Average Slope/ ISO-Sine/ISO Tangent Map d. DEM	10

		e. Coal Shadow	
6	<b>Profile Representation</b>	A) Cross Profile and Histogram of Basin B) Longitudinal Profile of Rivers C) Interpretation of Profile	06
7	<b>Representation of Physical Data</b>	A) Climo-graph B) Hyther-graph C) Wind rose	06
8	<b>GPS Survey</b>	A) History of GPS B) Types of GPS C) Components of GPS D) Triangulating from Satellites E) Getting perfect timing F) Knowing Location of Satellite in the Space G) Reading on GPS H) Survey with GPS: i) Lat-long and elevation of Surveyed Points ii) Drawing of Layout iii) Area Measurement from the layout	06
9	<b>Project Report on GPS Survey</b>	A) Project Report of GPS Survey (Individual) 1) Survey of College Campus/ Play ground/ Built up area of department/ Agricultural field with the help of GPS. 2) Layout of surveyed area 3) Actual original map/ layout of surveyed area 4) Area difference between Original map and surveyed layout. B) Students should prepare Project on GPS survey C) At the time of Examination every students should present a report with the help of PPT	10

**Question Paper Pattern: (All Questions are Compulsory)**  
**Each question carry ----12 Marks (06 marks for A and 06 Marks for B)**

Question No	Marks	Question
1	12	Map Preparation
2	12	Map Preparation
3	12	Map Preparation
4	12	GPS Survey in Field
5	12	Project Report Writing & Presentation
6	10	Oral & Journal
Internal	<b>40</b>	
External	<b>60</b>	
Total	100	

## References:

1. User Guide of ILWIS 3.4 ACAEMIC- In the software user guide file is given. Print the file
2. Monkhouse: "Maps and Diagrams"
3. <http://www.gisdevelopment.net/downloads/gps/index.htm>
4. <http://www.google.co.in/search?hl=en&q+gps+software & meta=&aq=3&oq+GPS>
5. [http://www.colorado.edu/geography/gcraft/notes/gps/gps\\_f.html](http://www.colorado.edu/geography/gcraft/notes/gps/gps_f.html)
6. <http://www.funrungames.com/navfunpro.php>

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**North Maharashtra University, Jalgaon**  
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**Semester III**

**Gg. 401: (A) FLUVIAL GEOMORPHOLOGY**

**W.E. F. June 2016**

Unit	Topic	Sub Topic	Period
1	<b>Hill slope fluvial Processes</b>	A) Introduction – concept of hill slope B) Process: a) Through flow b) Overland flow (Definition, nature, type and Characteristics) C) Hill slope profile	6
2	<b>Stream flow</b>	A) Introduction: a) Fluvial energy concept b) Energy B) Mechanism of stream flow- Factors affecting stream flow and chezy's equation of stream flow velocity C) Velocity distribution in stream channel (Isovel pattern) a) Velocity distribution in stream direction b) Velocity distribution across stream channel: i) Symmetrical channel ii) Asymmetrical channel D) Types of stream flow: a) Quantitative measures of stream flow: i) Reynolds number ii) Froude number. b) Types of stream flow: i) Steady and unsteady flow ii) Uniform and non-uniform flow iii) Laminar and turbulent flow	10

		iv) energy loss in stream flow	
3	<b>Sediment Transportation</b>	A) Introduction a) Stream power b) Stream competence B) Mechanism of sediment transportation a) Critical tractate force b) Stoke's law C) Types of sediments load transportation a) Solute load transportation b) Suspended load transportation c) Bed load transportation	6
4	<b>Hydraulic geometry</b>	A) Introduction- concept of Hydraulic geometry B) Variations in Hydraulic geometry at channel cross section: a) Discharge & depth relationship b) Discharge & width relationship c) Discharge & velocity relationship d) Channel cross section types C) Variations in hydraulic geometry along stream channel in downstream direction a) Discharge & depth relationship b) Discharge & width relationship c) Discharge & velocity relationship d) Channel patterns i) Straight ii) Meandering iii) Braided	8
5	<b>Drainage composition</b>	A) Introduction- Drainage hierarchy a) Horton`s system b) Stealer`s system B) Laws of drainage composition a) Horton`s law of stream number & bifurcation ratio b) Horton`s law of average stream length & stream length ratio c) Horton`s law stream slope & slope ratio d) Horton`s law of stream area & area ratio C) Drainage texture properties a) Drainage frequency b) Drainage density D) Law of algometric growth	10
6	<b>Concept of grade</b>	A) Introduction- general concept a) Machines concept of grade b) Gilberts dynamic equilibrium c) Longitudinal profile & grade d) Longitudinal profile below grade e) Longitudinal profile above grade	10
7	<b>River metamorphosis</b>	A) Introduction to River metamorphosis: a) Concept of river metamorphism	06

		b) Short term river changes c) Long term river changes B) River metamorphism phenomena a) Drainage network contraction & expansion b) River capturing phenomena c) Misfit & under fit stream d) Channel distortions	
8	<b>Quaternary fluvial Changes</b>	<b>Quaternary fluvial changes</b> a) Concept of quaternary fluvial changes b) Quaternary river terraces	04

**Question Paper Pattern: (Students will solve five questions out of seven questions)**

**Each question carry ----12 Marks (06 marks for A and 06 Marks for B)**

**Reference Books**

1. Leopold L.B. Walman M.G. and Miller J.P. (1964) : Fluvial Processes in Geomorphology W. H. Freeman Company San Francisco
2. Gregory K.G. and Walling D. (1973) ; Drainage basin forms and processes. Edward Arnold
3. Morrisawa (1985) : Stream
4. Richards K. (1982) River; form and processes in alluvial channels Matheu London
5. Schumm S.A. (1977) Fluvial system John Wiley & Co.

<b>Topic</b>	<b>Marks</b>
1	12
2	12
3	12
4	12
5	12
6	12
7	12
8	12
<b>Internal</b>	<b>40</b>
<b>External</b>	<b>60</b>
Total Marks	100

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**Semester III**

**Gg. 401: (B) INDUSTRIAL GEOGRAPHY**

**W.E. F. June 2016**

**Aims and Objectives:**

- 1) To acquaint the students with stages of economic process
- 2) Most of the industrial planners are ignoring geography. Hence industries are creating pollution hazards. To acquaint the students with the industrial, location, geographical factors and development process is the main objective.

Unit	Topic	Sub Topic	Period
1	Introduction to Industrial Geography	A) Definition of Industrial Geography B) Nature of Industrial Geography C) Scope of Industrial Geography D) Approaches to the study of Industrial Geography	6
2	Location of Industries	A) Factors of location a) Primary factors : Raw material, Labour, Transport, Market, Power. b) Secondary factors :Government policy ( Role), Capital, Infrastructure facilities & external economics, Proper industrial climate, Required site condition	08
3	Industrial location	A) Models of Industrial location a) Alfred Weber b) August Losch c) Tord Palender	08
4	World distribution of selected Industries	A) Iron & steel Industry B) Textile Industry C) Automobile Industry	06
5	Industrial regions of selected countries	A) U.S.A. B) Japan C) India D) China	06
6	Global industrialization & related problems	A) Impact of industrialization on national economy. B) Industrialization in developed countries. C) Industrialization in developing countries. D) Industrialization in under developed countries.	06
7	Methods of measuring the spatial distribution of manufacturing	A) Location quotient. B) Index of concentration. C) Scatter diagram	10
8	Impact of Industries	A) Environmental degradation caused by manufacturing industries	04

		C) Industrial hazards and occupational health D) Impact of manufacturing industries on economic development. E) Shifting of industries and its impact on the urban fringe F) Role of globalization on manufacturing sector.	
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**Question Paper Pattern: (Students will solve five questions out of seven questions)**  
**Each question carry ----12 Marks (06 marks for A and 06 Marks for B)**

Topic	Marks
1	12
2	12
3	12
4	12
5	12
6	12
7	12
8	12
<b>Internal</b>	<b>40</b>
<b>External</b>	<b>60</b>
Total Marks	100

**Reference Books**

1. Mather J.R. : Climatology (1974) , Fundamentals and Application. Mc Graw Hill New York
2. Hobbs, John E ( 1980) : Applied Climatology, Dawson West View Press.
3. Oliver, John E. (1973) : Climate and Mavis Environment, John Wiley and Sons, New York.
4. Geiger, Rudolf, (1966) : The climate near the Ground, Hardward University Press.
5. Lal M.(ed.) (1981) : Climatology, Selected Application, V .H. Winston and Sons, London.
5. Alexander, J.W. Economic Geography, Prentice Hall, Englewood Cliffs, 1988.
6. Alexanderson, C.: Geography of Manufacturing, Prentice Hall, Bombay, 1967.
7. Hoover, E.M.: The Location and Space Economy, McGraw Hill, New York 1948.
8. Isard, W.: Methods of Regional Analysis, The Technology Press of M.I.T. & John Wiley & Sons, New York 1956.
9. Miller, E.: A Geography of Manufacturing, Prentice Hall, Englewood Cliffs, New Jersey, 1962.
10. Weber, Alfred, Theory of Location of Industries, Chicago University Press, Chicago, 1957.
11. Goh Cheng Leong (1997)."Human and economic geography",Oxford Uni. Press, New York.
12. Truman, A. Harishorn, John W. Alexander (2000) "Economic Geography", Prentice Hall of India Ltd., New Delhi.
13. Thoman, R.S., Conkling E.C. and Yeates, M.H. (1968). Geography of Economic Activity, McGraw Hill Book Company, 1968.



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**Semester III**

**Gg. 401 (C) : GEOGRAPHY OF RURAL SETTLEMENTS**

**W.E. F. June 2016**

Unit. No.	Topic	Sub-topics	Periods
1	Introduction to Settlement Geography	<b>A) Definition and Evolution of settlements:</b> 1 Definition in different parts of the world 2 Sequence of occupancy from Neolithic 3. Modern periods. <b>B) Place names:</b> 1. Historical 2. Cultural and Geographical aspects of settlements reflected in place names.	06
2	Growth and Distribution	<b>A) Site, Situation &amp; Location:</b> 1. Various factors affecting settlement site and distribution 2. Depression and nucleation, factors affecting dispersion and nucleation- Methods of the measuring degree of dispersion. <b>B) Growth of Settlements:</b> 1. Factors affecting growth of settlements- 2. System of land division, water rights system of agriculture, land tenancy system	06
3	Theories of Rural Land Use	<b>A) Factors Affecting</b> 1. Intensity of Land use 2. Labour cost 3. Marketing of product <b>B) Theories:</b> 1. Von Thunen 2. Ricardo	08
4	Rural Economic Activities	<b>Rural Service Centres:</b> 1. Functional analysis of service village and Trading Centre 2. Centrality and Hierarchy of Rural Service centres 3. Central Place Theory	06

5	Morphogenesis of Rural Settlements and Transformation	<p><b>A) Morphogenesis</b></p> <ol style="list-style-type: none"> <li>1. Social</li> <li>2. Cultural</li> <li>3. Economic organization within villages.</li> </ol> <p><b>B) Functional growth</b></p> <ol style="list-style-type: none"> <li>1. Functional growth</li> <li>2. Socio-economic transformation in rural areas.</li> </ol>	06
6	Demographic Characteristics of Rural Settlement	<p><b>A) Demographic aspects</b></p> <ol style="list-style-type: none"> <li>1. Age-Sex, Education, Occupation, Caste</li> </ol> <p><b>B) Migration:</b></p> <ol style="list-style-type: none"> <li>1. Causes &amp; Consequence of migration in rural areas</li> <li>2. Seasonal migration.</li> <li>3. Commuting patterns</li> </ol>	12
7	Rural House Types & Rural Settlements in Maharashtra	<p><b>A) Rural House Types:</b></p> <p><b>Analysis of rural House Types:</b></p> <ol style="list-style-type: none"> <li>1. Primitive, Vernacular and Modern high rise</li> <li>2. Physical, Social, Cultural and Economic factors affecting rural house types.</li> <li>3. Size, functional use and architectural style.</li> <li>4. Building material</li> </ol> <p><b>B) Rural Settlements in Maharashtra:</b></p> <ol style="list-style-type: none"> <li>1. Various patterns</li> <li>2. House types and Settlement patterns in Maharashtra</li> </ol>	10
8	Rural Development Planning	<p>Various Aspects of Rural Planning:</p> <ol style="list-style-type: none"> <li>1. Landuse</li> <li>2. Transport</li> <li>3. Amenities</li> <li>4. Population</li> <li>5. Environment</li> </ol>	06

**Reference Books:**

1. Alam S.M. et.al. :Settlement System of India Oxford and IBH PublicationCo., New Delhi 1982.
2. Chisholm M. : Rural Settlement and Land use. John Wiley, New York , 1967
3. Clout H.D.: Rural Geography , Pergamon , Oxford, 1977.
4. Doniel P and Hopkinson M : The Geography of settlement Oliver & Byod, Edinburgh, 1986.
5. Grover N. Rural Settlement – A Cultural Geographical Analysis. Inter India Publication, Delhi, 1985
6. Hudson F.S. :A Geography of Settlements. Macdonald and Evans, New York, 1976.
7. Ramchandran H.: Village clusters and Rural Development. Concept Publication, New Delhi, 1985
8. Rao R.N.. Strategy for Integrated Rural Development. B.R. Publication, Delhi, 1986.
9. Rapoport A. House Form and Culture, Prentice Hall, New Jersey, 1969
10. Sen L.K.(ed) Readings in Micro-level Planning and Rural Growth Centers, National Institute of Community Development, Hyderabad. 1972.
11. Srinivas M.N: Village India, Asia Publication House, Bombay,1968.
12. Wanmati S.: Service Centers in Rural India, B.R. Publication Corporation , Delhi, 1983.
13. Singh R. L. Reading in Rural Settlement Geography.

<b>Topic</b>	<b>Marks</b>
1	12
2	12
3	12
4	12
5	12
6	12
7	12
8	12
<b>Internal</b>	<b>40</b>
<b>External</b>	<b>60</b>
Total Marks	100

**Question Paper Pattern: (Students will solve five questions out of seven questions)**

**Each question carry ----12 Marks (06 marks for A and 06 Marks for B)**

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**Semester III**

**Gg. 402: (A) TROPICAL GEOMORPHOLOGY**

**W.E. F. June 2016**

<b>Unit.</b>	<b>Topic</b>	<b>Sub-topics</b>	<b>Periods</b>
1	Introduction To Tropical Geomorphology	A) Definition. B) Nature & scope. C) Tropics- Definition & Extent. D) Morphogenetic regions of tropics. E) Types of morphogenetic regions of tropics. i) Humid tropics. ii) Savanna tropics. iii) Monsoon tropics. iv) Arid tropics	06
2	Tropical Climate	A) Temperature B) Wind circulation C) Precipitation D) Climate and geomorphology in the tropics	06
3	Tropical Weathering	A) Definition B) Processes of weathering C) Products of weathering D) Weathering and vertical zonation E) Effects of weathering	08
4	Laterite	A) Definition. B) Occurrence. C) Formation. D) Classification of laterite. E) Development of laterite. F) Laterite profile on granite basalt. G) Truncated. H) Non-truncated.	06
5	Tropical Denudation	A) Introduction- concept. B) Erosion from tropical rainfall. C) Mass movements	06
6	Tropical Deposition	A) Introduction. B) Fluvial depositional environment C) The channel alluvium	12

		D) Floodplain E) Tropical delta.	
7	Tropical Landforms	A) Introduction. B) Tropical escarpments & pediments. C) Tropical tors & domes. D) Definition. E) Occurrence. F) Morphology. G) Formation. H) Types.	10
8	Tropical Planations	A) Etchplains B) Peneplains C) Pediplains Occurrence, Distribution, Morphology, Origin	06

Topic	Marks
1	12
2	12
3	12
4	12
5	12
6	12
7	12
8	12
<b>Internal</b>	<b>40</b>
<b>External</b>	<b>60</b>
Total Marks	100

**Question Paper Pattern: (Students will solve five questions out of seven questions)**

**Each question carry ----12 Marks (06 marks for A and 06 Marks for B)**

#### **Reference Books**

1. Michael F. Thomas (1974) : Tropical Geomorphology, Mc Milan.
2. Douglas I. & Spanser (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 Savannas , Longman London.
5. Sharma H.S. (1969) : Tropical Geomorphology, UNESCO Paris.

**North Maharashtra University, Jalgaon**  
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**Semester III**

**Gg. 402 (B) : GEOGRAPHY OF TRADE & TRANSPORTATION**

**W.E. F. June 2016**

**Objectives:**

- To acquaint the students with basic concepts of trade and transport.
- To provide clarity about elements of transports as an infrastructure that facilitates linkages among locations and area with varied demographic socio-culture and economic attributes and nature and agriculture resources.
- To acquaint the students with scope, content and theoretical framework relating to transport routes, hierarchies, accessibility (physical and economics).
- To understand the spatial variations in movement of commodities, and trade relations within and between regions.
- To relate the characteristics of flow pattern and their intensity with levels of functional economic organization in space.

Unit. No.	Topic	Sub-topics	Periods
I	Concept, Development and Significance of Trade.	A) Concept of trade. B) Types of trade. C) Concept of Balance of trade. D) Role of trade in the world. E) Significance of trade.	06
II	Trading Blocks & Trading Pacts.	A) Trading Blocks. i) World trading blocks. ii) Major trading zones. B) Trading Pacts. i) European Economic Community (Common Market) EEC ii) European Free Trade Association (EFTA) iii) Latin American free Trade Association (LAFTA).	06
III	International Trade	A) History and development of international trade. B) Factors influencing international trade. C) Various treaties of trade at international level. D) India's Foreign trade.	08
IV	Trade theories	A) Neo-classical theory. B) Theory of comparative advantage. C) Modern theory.	06
V	Transport	A) Meaning, definition and significance of transport B) Factors associated with the development of transport system: physical, economical, social and cultural.	06

VI	Modes of transportation	Characteristics and relative significance of different modes of transportation: A) Landways : Roadways, Railways and Pipelines B) Waterways: Ocean and inland C) Airways	12
VII	Transportation Network	A) Network structure: Nodes and routes. B) Measurement of accessibility: i) Hierarchies. ii) Hinterlands. iii) Models of network changes. iv) Gravity models. v) Transport network and economic development.	10
VIII	Growth and problems of urban transport.	A) Growth of urban transportation in developing countries. B) Transport and environmental degradation. C) Vehicular pollution and congestion. D) Alternative transport system in mega cities of India. E) National highway development and planning in India.	06

**Question Paper Pattern: (Students will solve five questions out of seven questions)**

**Each question carry ----12 Marks (06 marks for A and 06 Marks for B)**

Topic	Marks
1	12
2	12
3	12
4	12
5	12
6	12
7	12
8	12
<b>Internal</b>	<b>40</b>
<b>External</b>	<b>60</b>
Total Marks	100

**Reference Books:**

1. Taffe, E.J and Gauthier H.L (1973): Geography of Transportation, Prentice-Hall
2. Majid Husain (1994): Transport Geography, Anmol Publication Pvt. Ltd. New Delhi.
3. O'Dell and Richards (1968): Railways and Geography
4. Sealy(1968): Geography of Air Transportation. Hutchinson University
5. Thoman and Conking: Geography of International Trade.
6. Singh K N (1990): Transport network in Rural Development, Institute of Rural Economic Development, Varanasi.
7. Thoman , Gonkling, Vegles(1974): Geography of Economics Activity.

8. Tolley R.S and Turton B.J. (1989): Transport system, Policy and Planning, Longman Group, Singapore
9. White H.P. and Senior M.L. (1989): Transport Geography, Longman Group, Singapore
10. Bhandari S (1992): Transport and Regional Development, Concept Publication, New Delhi
11. Pande (1991): Transport Geography, Concept Publication, New Delhi
12. Vaidya B C (eds) (1998): Reading in Transport Geography: A Regional Perspective , Devika Publication, New Delhi.
13. Saxena, H.M. : Transport Geography.

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**Semester III**

**Gg. 402 (C) : URBAN GEOGRAPHY**

**W.E. F. June 2016**

**Objectives:**

- To develop awareness among the students about the data sources and their application to understand and evaluate the spatial patterns and processes of urbanization.
- To encourage the students to study the urban morphology and urban functions with special reference to India.
- To understand the evolution of urban settlements with relevant theories and models.
- To study the fundamental concepts of urban settlement.
- To examine the contemporary urban issues and suggest remedial measures on them.
- To acquire the knowledge about the planned cities in India.

Unit. No.	Topic	Sub-topics	Periods
I	Introduction to Urban Geography	A) Meaning and definitions by various geographers B) Nature and scope C) Relation to other disciplines D) Significance E) Contributions of Indian scholars to the study of urban geography	06
II	Urbanization	A) Meaning of urban settlements and urbanization B) Criteria used to distinguish urban settlements C) Process of urbanization	06



		D) Factors influencing urbanization E) Trends of urbanization in India	
III	Urban morphology	A) Morphology of the city a) Definition b) The city core c) Integument d) Enclaves e) Kernel f) Characteristics and demarcation of CBD. B) Morphology of Indian towns C) Models of urban structure a) Concentric zone model – E.W. Burgess. b) Sector model – Homer Hoyt. c) Multiple nuclei model – Harris and Ullman	08
IV	Urban classification	A) Various approaches to classification B) Urban functions C) Functional classification of towns and cities by C.D. Harris and H.J.Nelson	06
V	Rural-Urban fringe	A) Meaning of rural-urban fringe B) Characteristics of rural-urban fringe C) Suburbanization D) Concepts of Conurbation, Megapolis, Satellite Towns	06
VI	City and its region	A) Concept of city region and various synonyms terms used B) Criteria used to demarcate the city region C) The nature of urban influence	12
VII	Contemporary urban issues	A) Urban issues a) Price land vertical and horizontal growth of cities b) Urban Sprawl c) Scarcity of housing and growth of slums d) Problems of civic amenities e) Urban transport problem f) Environmental pollution g) Urban poverty h) Urban crime i) Issues of environmental health j) Urban renewal B) Remedial measures to solve the urban problems.	10
VIII	Urban Planning	A) Need of urban planning B) Elements of city plan C) Master plan of towns: Meaning and need of master plans D) Planned cities in India E) The study of the following planned cities – Chandigarh, Jamshedpur & Lavasa	06

**Question Paper Pattern: (Students will solve five questions out of seven questions)**

**Each question carry ----12 Marks (06 marks for A and 06 Marks for B)**

<b>Topic</b>	<b>Marks</b>
1	12
2	12
3	12
4	12
5	12
6	12
7	12
8	12
<b>Internal</b>	<b>40</b>
<b>External</b>	<b>60</b>
Total Marks	100

### Reference Books:

1. Bose Ashsh: India's Urbanization 1901 to 2001-Tata Mcgraw Hill Publishing Co. New Delhi.
  2. Chopara Girish (2006): Urban Geography , Comman Wealth Publishing Co.New Delhi.
  3. Dikenson R.F: City and Region , Routledge and Kegan Paul Ltd. London.
  4. Hudson F.S.: Geography of Settlement ,
  5. Jonson J.M.: Urban Geography, Pergaman International Library. Pergaman Press.
  6. K.Siddhartha and S.Mukarjee (2000) : Cities Urbanization and Urban Systems, Kisalaya Publication New Delhi.
  7. Mayer Harold H. and Kohn clyde F. : Reading in Urban Geography , Central Book Depot. Allahabad.
  8. Misra R.P. (ed.): Contribution to Indian Geography, Urban Geography; Haritage Publishing Co. New Delhi.
  9. V.L.S. Prakash Rao: Urbanization in India , Concept Publishing New Delhi.
  10. Sawant S.B: The City of Poona , University of Pune.
  11. Taylor Griffith: Urban Geography , Methen & Co. Ltd. London.
  12. Mandal R.B. (2000): Urban Geography, A Textbook , Concept Publishing New Delhi.
  - 13.Majid Husain(1994) : Urban Geography, Anmol Publications PVT. LTD. New Delhi.
  17. Singh K and Steinberg F. (eds.) : Urban India in Crisis, New Age Interns, New Delhi, 1998.
  19. Tewari, Vinod K, Jay A. Weinstein, VLS Prakasa Rao (editors) Indian Cities: Ecological Perspectives Concept 1986
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**Semester III**

**Gg. 403: (A) RESEARCH METHODOLOGY**

**W.E. F. June 2016**

<b>Unit.</b>	<b>Topic</b>	<b>Sub-topics</b>	<b>Periods</b>
1	Introduction Research Methodology	A) Meaning. B) Motivation in Research C) Types of Research. D) Significance of Research E) Research & Scientific method. F) Research process. G) Criteria of good research	06
2	Defining the research problem	A) What is a research problem? B) Selecting the problem. C) Technique involved in defining a problem literature survey. D) Library & Documentation	06
3	Hypothesis	A) Characteristics of usable hypotheses. B) Types of Hypotheses. C) Sources of hypotheses. D) Formulation of Hypotheses. E) Utility of Hypotheses in scientific research	06
4	Research Design	A) Meaning of research design. B) Need for research design. C) Features of good design. D) Basic principles of experimental designs. E) Conclusion developing a research plan.	06
5	Sampling Design	A) Census & sample survey B) Implications of a sample design. C) Steps in sampling design. D) Criteria for selecting a sampling procedure. E) Characteristics of a good sample. F) Random sample from an infinite universe. G) Complex random sampling design. H) Conclusion	06
6	Methods of data collection	A) Collection of primary data collection. B) Collection of data through questionnaires. C) Collection of data through schedules. D) Some other methods of data collection. E) Collection of secondary data. F) Case study method. G) Guidelines for successful interviewing	10
7	Processing and Analysis of data	A) Processing operation. B) Types of analysis. C) Statistics in research.	10

		D) Measures of central tendency. E) Measures of dispersion, measures of asymmetry. F) Measures of relationship. G) Simple regression analysis. H) Multiple correlation & regression. I) Partial co-relation association in case of attributes. J) Others measures.	
8	Interpretation and Report writing	A) Meaning. B) Technique of interpretation. C) Precautions in interpretation. D) Signification of report writing & Different steps in writing report. E) Layout of research report F) Types of reports. G) Oral presentation mechanics of writing a research report. H) Precautions for writing research reports. I) Conclusion.	10

**Question Paper Pattern: (Students will solve five questions out of seven questions)**

**Each question carry ----12 Marks (06 marks for A and 06 Marks for B)**

#### Weightage of Marks

Topic	Marks
1	12
2	12
3	12
4	12
5	12
6	12
7	12
8	12
<b>Internal</b>	<b>40</b>
<b>External</b>	<b>60</b>
Total Marks	100

#### Reference Books

1. Research Methodology Methods and Techniques : C.R.Kothari, Welley Eastern Ltd.
2. Research Methodology A Hand Book : R.P.Mishra, Concept Publishing Co. New Delhi
3. Research Methodology : Dr. R.N.Tiwari and Dr. D.P.Shukla College Book Depot. 83, Tripolia Jaipur.
4. Explanation in Geography : Harvey D. Arnold ,London.
5. Perspective on the nature of Geography : R. Hartshorne.
6. Theoretical Geography.7. Models in Geography ; Haggett and Chorley

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**Semester IV**

**Gg. 403 (B): DISSERTATION**

**Note :-** Only those students will be allowed to offer dissertation who scored more than 55 % in all the courses of first two semester & the option of dissertation 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 dissertation.

A students should prepare individual dissertation report on one topic. While preparing the dissertation students should follow the guidelines cited as below :

- i) Students will prepare the dissertation by considering research methodology.
- ii) Students will apply Excel worksheet for data analysis.
- iii) All maps should be prepared by AUTO cad Map or Ilwis or GPS-GIS software.
- iv) A students will submit three copies of their project. (One copy for students, One copy for Department)
- v) Students should present the dissertation with the help of Power point.
- vi) At the time of presentation student should present raw data, data analysis techniques & findings.
- vii) Manual data analysis & mapping will not be entertained.

**Selection of the Topic :** As per the discussion of respective guide and students

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**Semester IV**

**Gg. 404 (A): GEOGRAPHY OF TOURISM**

**W.E. F. June 2016**

<b>Unit.</b>	<b>Topic</b>	<b>Sub-topics</b>	<b>Periods</b>
1	Concept of Tourism Marketing	A) Tourism products : i) Attraction ii) Facilities iii) Accessibility iv) Marketing characteristics B) Types of Tourism Marketing: Vocational Tourism, Business Tourism Common Interest tourism.	06
2	Functions of Tourism Marketing	i) Marketing Research ii) Advertisement iii) Sales supports iv) Public Relations Tourism Publications.	06
3	Impacts of Tourism	A) Economics Impacts : i) Effects on foreign exchange, ii) Employment generation iii) Increase in Trading activities iv) Inflation of Land values v) Increase in revenue vi) concept of Economics multiplier, Investment	06
4	Socio-cultural and Environmental Impacts	A) Neocolonialism B) Crime & Gambling activities C) Impact on Religion, Language and Health D) Tourism and cultural changes. E) Impact of Tourism on Environment.	06

5	Tourism Planning	A) Types of Tourism planning B) Problems of Tourism planning. C) Tourism planning in developed and developing countries. D) Components of Tourism planning E) Programme implementation. F) Evaluation of National Tourism attraction. G) Infrastructural facilities. H) Model of Tourism planning.	06
6	Role of Travel Agency in Tourism	A) Thomas cook, The American Express Co. Cox and kings. B) Modern Travel Agencies and their operations.	10
7	Travel organizations	ASTA, UFTAA, Travel Agents in India, TAAI, ITDC, MTDC	10
8	Role of Indian Railways	Role of Indian Railways in the growth of Tour Business. Growth, Importance and characteristics of Indian Railways	10

**Question Paper Pattern: (Students will solve five questions out of seven questions)**

**Each question carry ----12 Marks (06 marks for A and 06 Marks for B)**

Topic	Marks
1	12
2	12
3	12
4	12
5	12
6	12
7	12
8	12
<b>Internal</b>	<b>40</b>
<b>External</b>	<b>60</b>
Total Marks	100

### Recommended Books

1. Heritage Tourism Development- Romila Chawala
2. Development of Tourism in India- H.L.P. Rai

3. Tourism Development- A.K. Bhatia
4. International Tourism- A.K. Bhatia
5. Tourism Development- A.K. Bhatia
6. Development of Tourism in India- H.L.P. Rai
7. Tourism and Economic Growth and Development- P.A. Agarwal
8. Economics of Tourism Development- Romila Chawala
9. Tourism Industry- S.K. Kalia
10. Potential of Tourism- P. Bhalla
11. Tourism Industry in India- Dr. M. Selvan
12. Tourism in the 21<sup>st</sup> Century- G.S. Batra
13. Tourism Development- A.K. Bhatia
14. International Tourism- A.K. Bhatia
15. Heritage Tourism Development- Romila Chawala
16. Development of Tourism in India- H.L.P. Rai
17. Tourism and Economic Growth and Development- P.A. Agarwal

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**North Maharashtra University, Jalgaon**  
**MA/M.Sc. Geography New Syllabus**  
**Semester IV**

**Gg. 404 (B): COASTAL GEOMORPHOLOGY**

**W.E. F. June 2016**

<b>Unit.</b>	<b>Topic</b>	<b>Sub-topics</b>	<b>Periods</b>
1	Introduction to Coastal Geomorphology	A) Introduction a) Definition b) Nature. c) Scope. d) Significance B) Coastline shoreline & Hinterland	06
2	Shore zone Processes I	A) Waves a) Definition. b) Morphology. c) Types: i) Sea waves- shallow & deep water waves. ii) Capillary waves- Gravity waves & tidal waves. iii) Wind wave- Storm wave & Tsunamis. B) Wave phenomena: a) Swells & breaking of waves.	06



		b) Wave refraction, deflection & reflection	
3	Shore zone Processes II	<p>A) Currents:</p> <p>a) Definition</p> <p>b) Types</p> <p>i) Wave induced shore, normal current, long shore current, rip current &amp; beach drift.</p> <p>ii) Wind induced currents.</p> <p>iii) River induced currents.</p> <p>B) Tides :</p> <p>a) Definition</p> <p>b) Tide generating force.</p> <p>c) Equilibrium theory of tide.</p> <p>d) Types of tides.</p> <p>i) Diurnal &amp; semidiurnal.</p> <p>ii) Spring &amp; neap tide.</p>	06
4	Shore line changes	<p>A) Concept of shoreline changes.</p> <p>B) Quaternary eustatic changes.</p> <p>a) Evidences. (b) causes. (c) effects</p>	06
5	Coastal erosional process & landforms	<p>A) Concept of coastal erosion.</p> <p>B) Processes of coastal erosion.</p> <p>C) Landforms of coastal erosion.</p> <p>a) Sea cliff &amp; shore platform.</p> <p>b) Caves, arches &amp; stacks.</p> <p>c) Geos &amp; blow holes.</p>	06
6	Coastal depositional processes & landforms	<p>A) Concept of coastal deposition.</p> <p>B) Processes of coastal deposition.</p> <p>C) Landforms of coastal deposition.</p> <p>a) Beaches.</p> <p>b) Spits bars &amp; barrier islands.</p> <p>c) Sand dunes.</p> <p>d) Mangroves, shamps &amp; salt marshes.</p> <p>e) Estuaries &amp; deltas.</p>	10
7	Coastal sediments	<p>A) Sources of coastal sediments.</p> <p>B) Types.</p> <p>a) Terrigenous.</p> <p>b) Pelagic.</p> <p>c) Volcanic.</p> <p>d) Meteoric.</p> <p>C) Coral reef.</p> <p>a) Definitions.</p> <p>b) Favourable conditions for the formation.</p> <p>c) Formation – daily &amp; Murray’s theory.</p> <p>d) Types of coral reef.</p> <p>i) Fringing reef.</p> <p>ii) Barrier reef.</p> <p>iii) Atol</p>	10
8	Classification of the coast & shore line	<p>A) Bases of classification.</p> <p>B) Types &amp; characteristics &amp; examples.</p> <p>a) Submergence.</p> <p>b) Emergence.</p> <p>c) Neutral.</p>	10

**Reference Books:**

1. Pethic John (1984) : An Introduction to coastal geomorphology, Arnold Heinemann, London.
2. Ahmed E. (1973) : Coastal Geomorphology of India , Orient Longman, Mumbai.
3. Bird E.C.( 2000) : Coastal Geomorphology an Introduction ,John Wiley & Sons. Chicfester.
4. Karlekar S.N> (1993) : Coastal Geomorphology of Konkan, Aparna Publication Pune. 411037.

**Question Paper Pattern: (Students will solve five questions out of seven questions)**

**Each question carry ----12 Marks (06 marks for A and 06 Marks for B)**

Topic	Marks
1	12
2	12
3	12
4	12
5	12
6	12
7	12
8	12
<b>Internal</b>	<b>40</b>
<b>External</b>	<b>60</b>
Total Marks	100

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**North Maharashtra University, Jalgaon**  
MA/M.Sc. Geography New Syllabus

**Semester IV**

**Gg. 404 (C): AGRICULTURAL GEOGRAPHY**

**W.E. F. June 2016**

**Objectives:**

- To familiarize the students with the fundamental concepts in agricultural geography.
- To examine the role of physical and non-physical determinants towards changing cropping patterns, intensity, productivity, diversification and specialization.
- To acquaint the students with the application of various theories and models in agricultural geography.
- To study the agricultural systems in different parts of the world.
- To discuss environmental, technological and social issues in agricultural sector with special reference to India.
- To know the students the overall importance of agriculture in global perspective.

Unit. No.	Topic	Sub-topic	Periods
I	Introduction to Agricultural Geography	A) Definitions, nature and scope, significance and development of agricultural geography. B) Approaches to the study of agricultural geography. <ol style="list-style-type: none"> <li>i) Environmental approach.</li> <li>ii) Regional approach.</li> <li>iii) Commodity approach.</li> <li>iv) Behavioural approach</li> <li>v) System analysis approach</li> </ol>	06
II	Fundamental Concepts	Fundamental concepts in agricultural geography – Meaning and explanation. <ol style="list-style-type: none"> <li>A) Landuse               <ol style="list-style-type: none"> <li>i) General landuse</li> <li>ii) Agricultural landuse</li> <li>iii) Arable land</li> <li>iv) Net sown area</li> <li>v) Gross cropped area</li> </ol> </li> <li>B) Crops               <ol style="list-style-type: none"> <li>i) Cropping pattern</li> <li>ii) Crop rotation</li> <li>iii) Intensity of cropping</li> <li>iv) Crop concentration</li> <li>v) Crop diversification</li> <li>vi) Crop combination.</li> </ol> </li> <li>C) Agricultural Production and Development               <ol style="list-style-type: none"> <li>i) Agricultural efficiency</li> <li>ii) Agricultural productivity</li> <li>iii) Agricultural labour productivity</li> <li>iv) Marginal land</li> <li>v) Agricultural development</li> <li>vi) Sustainable Agricultural development</li> </ol> </li> <li>D) Other concepts               <ol style="list-style-type: none"> <li>i) Land reform</li> <li>ii) Land tenure</li> </ol> </li> </ol>	08
III	Determinants of agricultural activities	A) Physical determinants <ol style="list-style-type: none"> <li>i) Topography , altitude and slope</li> <li>ii) Climate – temperature, sunshine, frost, moisture, drought , snow, winds, non-seasonal precipitation.</li> <li>iii) Soils</li> </ol> B) Socio- economic determinants <ol style="list-style-type: none"> <li>i) Land tenancy</li> <li>ii) Size of holding and fragmentation of fields</li> <li>iii) Labor</li> <li>iv) Capital</li> <li>v) Mechanization and equipments</li> <li>vi) Marketing facilities</li> <li>vii) Government policies</li> <li>viii) Religion</li> </ol>	12

IV	Agricultural systems	A) Meaning and concept C) Whittlesey's classification of agricultural systems D) Types of agricultural – Subsistence and commercial agriculture E) Study of the following types of agriculture in respect of areas, salient features and their problems i) Shifting cultivation ii) Intensive subsistence Agriculture iii) Commercial grain farming iv) Dairy Farming v) Plantation agriculture	08
V	Agricultural Regionalization	A) Agricultural Region : Meaning & concept B) Techniques for the delimitation of agricultural regions i) Normative techniques ii) Empirical techniques iii) Single element techniques iv) Statistical techniques v) Complete multi-facet techniques (Quantitative & qualitative) C) Agricultural regions of India demarcated by Randhava M.S.	06
VI	Modes in Agricultural Geography	A) Model : i) Meaning & Concept ii) Significance of Agricultural models iii) Limitations of Agricultural Models B) Classification of agricultural models i) Normative or Economic models ii) Descriptive models C) Von Thunen's Models & its modifications	08
VII	Agricultural Statistics & Land use Survey techniques	A) Sources of agricultural statistics i) Primary Sources of Agricultural data (observation, interview, questionnaire & schedule) ii) Secondary Sources of agricultural data ( Indian Agricultural Statistics, Agricultural seasons and crop reports, crop statistics, irrigation statistics, agricultural prices, World Agricultural Statistics & other statistics)	06
VIII	Agrarian Revolution	A) Meaning & Merit and Demerit of Green Revolution B) Meaning & Merit and Demerit of White Revolution	06

**Question Paper Pattern: (Students will solve five questions out of seven questions)**

**Each question carry ----12 Marks (06 marks for A and 06 Marks for B)**

Topic	Marks
1	12
2	12
3	12
4	12
5	12
6	12
7	12
8	12

<b>Internal</b>	<b>40</b>
<b>External</b>	<b>60</b>
Total Marks	100

### Reference Books:

- 1 Symons, Leslie (1970) – Agricultural Geography, G. Belt and Sons Ltd, London.
- 2 Morgan. W.B. & S.C. Monton (1971) – Agricultural Geography Methuen , London.
- 3 Randhawa, M.S.(1980) – An History of Agriculture in India Vols. I,II,III,IV ICAR, New Delhi.
- 4 Singh . J. and Dhillon S.S (1994) – Agricultural Geography, Tata McGraw Hill, Publishing Co. Ltd.
- 5 Majid Husain (2010) – Systematic Agricultural Geography , Rawat Publications, Jaipur.
6. Grigg, D.B. : The Agricultural Systems of the World. Cambridge University Press, New York 1974.
7. Morgan, W.B. : Agriculture in the Third World - A Spatial Analysis. Westview Press, Boulder, 1978.
- 8 Tarrant, J.R. : Agricultural Geography. Wiley, New York, 1974.

## NORTH MAHARASHTRA UNIVERSITY, JALGAON NEW SYLLABUS OF M.A./M.Sc. GEOGRAPHY

### Semester – IV

**(With Effect From June, 2016)**

### **Gg. 405: INTERPRETATION OF TOPOGRAPHICAL MAPS, AERIAL PHOTOGRAPHS, SATELLITE IMAGERIES & SURVEYING**

#### Objectives:

- To acquaint the students with basic knowledge of topographical maps, aerial photographs, and satellite imageries.
- To know the importance, and techniques of interpretation of topographical maps, aerial photographs, and satellite imageries.
- To identify various natural and cultural features depicted in the maps, photographs and imageries.
- To study the relationship existed between various natural and cultural features.
- To know the techniques of surveying with the help of certain instruments.

- To give practical knowledge about survey of villages.
- To prepare the survey report by adopting appropriate methods.

Unit.	Topic	Sub-topics	Periods
I	Topographical Maps	E) Introduction to S.O.I topographical maps. F) Types of topographical maps G) Index numbers (International World Map Series H) Grid Reference <ol style="list-style-type: none"> <li>i) Four figure grid</li> <li>ii) Six figure grid</li> <li>iii) International grid reference</li> </ol> I) Interpretation of topographical maps <ol style="list-style-type: none"> <li>i) Plain Region.</li> <li>ii) Plateau Region</li> <li>iii) Mountainous Region</li> <li>iv) Coastal Region</li> <li>v) Desert Region</li> </ol>	10
II	Aerial Photographs	A) Introduction to aerial photographs <ol style="list-style-type: none"> <li>i) Definition,</li> <li>ii) Types</li> <li>iii) Geometry of aerial photographs</li> <li>iv) Methods of scale determination</li> <li>v) Measurement of geographical area</li> <li>vi) Stereoscope, Stereo-pair, Stereoscopic overlapping, and Stereoscopic vision.</li> <li>vii) Elements of photo interpretation</li> <li>viii) Interpretation of aerial photographs (at least three stereo-pairs)</li> </ol>	10
III	Satellite Imageries	A) Introduction to satellite imageries Annotation strip on satellite imageries <ol style="list-style-type: none"> <li>i) Introduction to Lat-Longs</li> <li>ii) Calculation of geographical area</li> <li>iii) Interpretation of satellite imageries (at least two imageries)</li> </ol>	10
IV	Surveying	A) Definition and types of surveying. B) Dumpy Level Survey: <ol style="list-style-type: none"> <li>i) Introduction to Dumpy Level</li> <li>ii) Meaning and concept of Back Sight (BS), Intermediate Sight (IS) and Forward Sight (FS)</li> <li>iii) Operation of Leveling.</li> <li>iv) Determination of height (RL) of different stations from the given information (and also for the actual surveyed stations) by               <ol style="list-style-type: none"> <li>a. Collimation method.</li> <li>b. Rise and fall method.</li> </ol> </li> <li>v) Longitudinal /profile leveling by Dumpy Level</li> <li>vi) Preparation of contour maps of surveyed areas. (Contouring by leveling along radial line by a Dumpy Level: at least three radial lines to be set out from a common centre and their relative position to be</li> </ol>	15

		obtained by measurement of magnetic bearing and/or included angle by Prismatic Compass.) vii) Preparation of Level Book	
V	Transit Theodolite Survey	A) Definition , Uses and Types of Theodolite Survey B) Parts of Theodolite and their function C) Technical terms used in Theodolite survey D) Measurement of Horizontal Angle i) Repetition Method (ii) Reiteration Method ii) Calculation of bearings from angles, Examples of (Included and Deflection methods) E) Measurement of Horizontal and Vertical Angles F) Traverse Survey with Theodolite G) Introduction and Principles of Tacheometry Surveying with examples: i) Fixed Hair Method ii) Movable Hair Method iii) Tangential Method	15

**Question Paper Pattern: (All Questions are Compulsory)**

**Each question carry ----10 Marks (05 marks for A and 05 Marks for B)**

**Reference Books:**

1. V.S.Gajare: "Surveying" Part I & II, Nirali Prakashan" available at Jalgaon: Pragati Books PVT, ltd, 34 vv Golani Market, Navi Peth. Jalgaon. Ph.No 0257 220395
2. Kanetkar: "Surveying Vol I and II"
3. Tamaskar B.G. and Deshmukh V.M.(1974): "Geographical Interpretation of Topographical Maps". Orient Longman limited, Bombay
4. Rammurthy, K. (1982): "Map Interpretation", Madras.
5. Petrie N. (1992) "Analysis and Interpretation of Topographical Maps", Orient Longman
6. Limitd , Calcutta.
6. Gupta, K.K. and Tyagi, V.C. (1992): "Working with maps", Survey of India Publication, Dehradun.
7. Singh, R.L. & P.K. Dutt : Elements of Practical Geography Students friends.
8. Gopal Singh (1998): "Map Work and Practical Geography", Vikas Publishing house Pvt.Ltd., New Delhi.
9. Monkhouse, F.J. & H.R. Wilkinson; Maps and Diagrams Mathuen, London.
10. Kilford, W.K.: "Elements of Air Survey", The Pritam Publishing Corporation, New Delhi.
11. Curran Paul.J.:"Principles of Remote Sensing", English Language Book Society, Longman
12. Dickinson G.C.: "Map and aerial Photographs", Arnold Heinmann.
13. Floyds Sabins: "Remote Sensing Principles and Applications", Freeman and Co. New York.

Questions	Unit	Pattern of Question Paper
1	I	A) Toposheet Interpretation = 05 Marks B) Drawing of Profiles, Layout =05 Marks
2	II	A) Short Questions & Drawing / Geometry/Scale = 05 Marks B) Interpretation of AP =05 Marks
3	III	A) Calculation of Scale, Area/ Length Measurement, = 05 Marks B) Identification and their Interpretation = 05 Marks
4	IV	Field Survey with Dumpy = 10 Marks
5	V	Field Survey with Theodolite =10 Marks
6	All	Journal and Viva Voce =10 Marks
		<b>Internal Test/ Seminar =40 Marks</b>
		<b>Total Marks 100</b>

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