

MAHARSHI DAYANAND SARASWATI UNIVERSITY, AJMER



पाठ्यक्रम
SYLLABUS

SCHEME OF EXAMINATION AND COURSES OF STUDY

FACULTY OF ARTS & SOCIAL SCIENCE

**M.A./M.Sc. GEOGRAPHY (PREVIOUS)
(w.e.f. 2015-16)**

**M.A./M.Sc. GEOGRAPHY (FINAL)
(w.e.f. 2016-17)**

महर्षि दयानन्द सरस्वती विश्वविद्यालय, अजमेर

SCHEME OF EXAMINATION**M.A./M.Sc. PREVIOUS****M.A./M.Sc. FINAL**

Each Theory Paper	3 Hrs. Duration	100 M
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1. The number of papers and the maximum marks for each paper/practical shall be shown in the syllabus for the subject concerned. It will be necessary for a candidate to pass in the theory part as well as in the practical part (wherever prescribed) of a subject/ paper separately. Previous and final each will be of 500 marks Total = 1000 Marks.
2. A candidate for a pass at each of the Previous and the final Examinations shall be required to obtain (i) at least 36% marks in the aggregate of the papers prescribed for the examination and (ii) at least 36% marks in practical (s) wherever prescribed at the examination, provided that if a candidate fails to secure at least 25% marks in each individual paper at the examination and also in the test dissertation/ survey report/field work, wherever prescribed, he shall be deemed to have failed at the examination not withstanding having obtained the minimum percentage of marks required in the aggregate for the examination. No division will be awarded at the previous examination. Division shall be awarded at the end of the Final Examination on the combined marks obtained at the previous and the Final Examinations taken together, as noted below.

First Division 60%	of the aggregate marks taken together at
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Second Division 48%	the Previous and the Final Examination
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3. If a candidate clears any Paper(s)/Practical(s) Dissertation prescribed at the Previous and / of Final Examination after a continuous period of three years, then for the purpose of working out his division the minimum pass marks only viz.

25% (36% in the case of practical) shall be taken into account in respect of such Paper(s) Practical(s)/ Dissertation are cleared after the expiry of the aforesaid period of three years, provided that in case where a candidate requires more than 25% marks in order to reach the minimum aggregate as many marks out of those actually secured by him will be taken into account as would enable him to make up the deficiency in the requisite minimum aggregate.

NOTICE

1. Change in Statutes/Ordinances/Rules/ Regulations Syllabus and Books may, from time to time, be made by amendment or remaking, and a candidate shall, except in so far as the University determines otherwise comply with any change that applies to years he has not completed at the time of change. **The decision taken by the Academic Council shall be final.**

सूचना

1. समय-समय पर संशोधन या पुनः निर्माण कर परिनियमों/ अध्यादेशों/नियमों / विनियमों / पाठ्यक्रमों व पुस्तकों में परिवर्तन किया जा सकता है, तथा किसी भी परिवर्तन को छात्र को मानना होगा बशर्ते कि विश्वविद्यालय ने अन्यथा प्रकार से उनको छूट न दी हो और छात्र ने उस परिवर्तन के पूर्व वर्ष पाठ्यक्रम को पूरा न किया हो। विद्या परिषद द्वारा लिये गये निर्णय अन्तिम होंगे।

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4. The Thesis/ Dissertation/ Survey Report/ Field Work shall be typewritten and submitted in triplicate so as to reach the office of the Registrar at least 3 weeks before the commencement of the theory examinations. Only such candidates shall be permitted to offer Dissertation/ Field Work/ Survey Report/ Thesis (if provided in the scheme of examination) lieu of a paper as have secured at last 55% marks in the case of annual scheme and I and II semester examinations taken together in the case of semester scheme, irrespective of the number of papers in which a candidate actually appeared at the examination.

MA/M.Sc. GEOGRAPHY

Their will be four theory papers and a practical each in previous and final Examination, Each of the theory papers will be of 100 Marks. Each of the theory paper will be of three hours duration. Candidates will be required to pass of both in Theory and Practical separately.

Note :-

- Each theory paper is divided into three independent units. The question paper is divided into three parts, Part -A, Part-B and Part-C
- Part - A (30 marks) is compulsory and contains 10 question (50 words), at least three questions from each unit, each question is of 3 marks.
- Part - B (25 marks) is compulsory and contains five questions, at least one from each unit. Candidate is required to attempt all five questions. Each question is of 5 marks (100 words).
- Part - C (45 marks) contains six question, two from each unit. Candidate is required to attempt three questions in all one from each unit. Each question is of 15 marks (400 words).

MA/M.Sc. Previous

All four papers are compulsory.

Paper I : Evolution of Geographical Thought.	100 Marks
Pater II : Structural and Dynamic Geomorphology.	100 Marks
Paper III : Principles and Theory of Economic Geography.	100 Marks
Pater IV :Any one of the following -	100 Marks
(a) Quantitative Techniques in Geography	
(b) Geography of South Asian Countries (Bangladesh, Nepal, Shri Lanka, Pakistan and Bhutan)	
(c) Regional Planning.	
Practical :	100 Marks

Total

500 Marks

N.B. : 12 hours of teaching for practical be provided per batch of 15 students per week.

Note : A weekly seminar is to be arranged for M.A. Previous & Final Students.

MA/ M.Sc. Final**PAPER V & VI are compulsory**

Paper V : Advanced Geography of India.	100 Marks
Pater VI : Urban Geography.	100 Marks
Paper VII :Anyone of the following-	100 Marks
(a) Bio-Geography	
(b) Agricultural Geography	
(c) Population Geography.	
Pater VIII :Anyone of the following	100 Marks
(a) Political Geography	
(b) Climatology and Oceanography.	
(c) Remote Sensing &G.I.S.	
Dissertation : In lieu of paper VII & VIII.	
Practical :	100 Marks
Total	500 Marks

N.B. : 12 hours of teaching for practical be provided per batch of 15 students per week.

Instruction for Geography Practical Examination :

- Record work of minimum 20 sheets must be prepared by students and checked & signed by teacher with date, otherwise students will be responsible. Students must write his/her name on every sheet. The teacher should give fresh exercise every year, so that the students may not undertake tracing of old exercise.
- Viva-voce Examination be held to Judge the real knowledge the students and to examine the authenticity of the record work, the marking on record work and viva-voce based on the original work of the candidate and not merely producing the record work done by any other agency. Marks will be deducted for the part of the syllabus not covered.
- On an average about 15 students be examined in one day in MA Previous. As far as possible in one practical exercise be set to judge the Practical

4. The external examiners, be provided syllabus and detailed instruction at the time of obtaining his consent. For M.A. / M.Sc. Previous & Final a minimum of 2 days each be fixed to conduct the examination.

Note : A Copy of the instructions is sent to the examiners for their information.

MA/Msc. PREVIOUS

PAPER-I : EVOLUTION OF GEOGRAPHICAL THOUGHT

3hr. duration

Max. Marks :100

Note :-

1. Each theory paper is divided into three independent units. The question paper is divided into three parts, Part –A, Part-B and Part-C
2. Part – A (30 marks) is compulsory and contains 10 question (50 words), at least three questions from each unit, each question is of 3 marks.
3. Part – B (25 marks) is compulsory and contains five questions, at least one from each unit. Candidate is required to attempt all five questions. Each question is of 5 marks (100 words).
4. Part – C (45 marks) contains six question, two from each unit. Candidate is required to attempt three questions in all one from each unit. Each question is of 15 marks (400 words).

Course Contents :

Unit – I

Meaning and definition, nature, aims and purpose, approaches and concepts of Geography, Geography as a social and natural science. Interdisciplinary trends, Post war, modern and recent trends in geography. Development of modern Geography in India.

Pre-scientific geographical ideas in ancient and medieval times : Indian influence. Geography – the Vedic age and Geography of Purana's (first four chapters of geography of Purana's by S.M. Ali), Detail study of Jambu Dwip.

Unit – II

Contribution by Greek, Roman and Arab Geographers, Al-Barauni and Ibn-Batuta. The emergence of scientific geography in the 18th and 19th centuries. Development of geographical ideas during 20th century. Founders of modern Geography – Humboldt, Ritter, Leaders of the first generation after Ratzel,

Richthofen, Hettner, Contributions of Vidal-de-Blache, Brunhes, Demangeon and Blanchard. Contribution of Mackindre, Herbertson, Miss Semple, Huntington and Davis, Russian School of Geography.

Unit – III

Dualism in geography : Physical & Human geography, Determinism & Possibilism, Regional & Systematic geography, Qualitative & Quantitative geography, Theoretical & Applied geography, Analytical & Synthetical geography, Myth and reality about dualism.

Positivism, Functionalism, Idealism and Realism in geography.

Behaviorism in Geography. Radical geography, Humanistic geography, Welfare geography and Feminist Geography, Postmodernism in Geography.

Books Recommended :

1. Minshull, Roger : The Changing Nature of Geography.
2. Hartshorne, Richard : Perspective on the Nature of Geography, The Association of American Geographers, Hutchinson University Library, London.
3. Dikshit, R.D. : Geographical Thought – A Contextual History of Ideas, Prentice Hall of India Pvt. Ltd.
4. Wooldridge and East : The Spirit and Purpose of Geography, Hutchinson University Library, London.
5. Dikshit, R.D. : The Arts, Science of Geography Integrated Readings Prentice Hall of India, New Delhi, 1994.
6. Saxena, D.P. : Regional Geography of Vedic India, Grantham Rambhag, Kanpur.
7. Hussain, Majjid : Evolution of Geographical Thought, Rawat Publication, Jaipur.
8. Hagget, P. : Geography – A Modern Synthesis, Harper International Ed.
9. हुसैन मजिद : भौगोलिक विचारधाराओं का इतिहास रावत पब्लिकेशन्स, जयपुर।
10. कौशिक, एस.डी. : भौगोलिक विचारधारा एवं विधि तंत्र, रस्तोगी प्रकाशन, मेरठ।
11. जैन, एस.एम. : भौगोलिक चिन्तन का विकास, साहित्य भवन, आगरा।

PAPER-II : STRUCTURAL AND DYNAMIC GEOMORPHOLOGY

3hr. duration

Max. Marks :100

Note :-

1. Each theory paper is divided into three independent units. The question paper is divided into three parts, Part –A, Part-B and Part-C

2. Part – A (30 marks) is compulsory and contains 10 question (50 words), at least three questions from each unit, each question is of 3 marks.
3. Part – B (25 marks) is compulsory and contains five questions, at least one from each unit. Candidate is required to attempt all five questions. Each question is of 5 marks (100 words).
4. Part – C (45 marks) contains six question, two from each unit. Candidate is required to attempt three questions in all one from each unit. Each question is of 15 marks (400 words).

Course Contents :**Unit – I**

Nature and scope of Geomorphology, Fundamental concept, Geological structures and landforms, uniformitarianism, concept of threshold, earth's interior, Isostasy. Earth movements – Epeirogenetic and Orogenetic movement. Forces of crustal instability, Plate Tectonics, Seismicity, Volcanicity, Orogenetic Structures with reference to the evolution of the Himalaya.

Unit – II

Earth sculpturing processes. Concept of gradation, Agents and processes of gradation, causes, types and classification of weathering. Mass movement, erosional and depositional processes, resultant landforms and soil formation. Dynamic geomorphic processes; Fluvial, Glacial, Aeolian, Marine and Karst processes and resulting landforms. Complexities in geomorphological processes. Erosion surfaces, techniques of identification and correlation. Slope evolution different views and models.

Unit – III

Geomorphology of ocean bottoms – Pacific, Indian and Atlantic ocean. Coral reefs and their theories. Coastal Geomorphology with special reference to India. Applied Geomorphology – application of geomorphic mapping terrain evaluation. Digital Elevation Model (DEM) and Triangulated Irregular Network (TIN) unit, land capability and last suitability classification, hydro-geomorphology, urban geomorphology, environmental geomorphology, geomorphic hazards.

Suggested Books :

1. Ahmed, E. : Coastal Geomorphology of India, New Delhi.
2. Chorley, R.J. : Spatial Analysis in Geomorphology, Methuen, London, 1972.
3. Cooke, R.U. and Doornkamp, J.C. : Geomorphology in Environmental Management – An Introduction, Clarendon Press, Oxford, 1974.
4. Cotton, C.A. : Geomorphology. John Wiley & Sons, New York.

5. Dayal, P. : A Test Geomorphology.
6. Dury, G.H. : The Face of the Earth, Penguin Harmondsworth, 1959.
7. Fairbridge, R.W. : Encyclopedia of Geomorphology, Reinholdts, New York, 1968.
8. Goudie, A : The Nature of the Environment, Oxford & Blackwell London, 1993.
9. Garner, H.F. : The origin of landscape – A Synthesis of Geomorphology Oxford University Press, London, 1974.
10. Jefferys. H. : The Earth – Its Origin, History & Physical Constitution.
11. John, Pity : Introductions to Geomorphology.
12. Kale, V. and Gupta, A : Elements of Geomorphology.
13. King and Embleton, C.A.M. : Glacial and Pre-Glacial Geomorphology, Arnold.
14. Lobeck, A.K. : Geomorphology, McGraw Hill Book co., New York.
15. Mitchell, C.W. : Terrain Evaluation, Longman, London, 1973.
16. सविन्द्र सिंह : भू-आकृति विज्ञान, वसुन्धरा प्रकाशन, गोरखपुर।
17. कौशिक, एस.डी. : भू-आकृति विज्ञान, रस्तोगी प्रकाशन, मेरठ।
18. नेगी, बी.एस. : भू-आकृति विज्ञान, रस्तोगी प्रकाशन, मेरठ।

PAPER-III : PRINCIPLES & THEORY OF ECONOMIC GEOGRAPHY

3hr. duration

Max. Marks :100

Note :-

1. Each theory paper is divided into three independent units. The question paper is divided into three parts, Part –A, Part-B and Part-C
2. Part – A (30 marks) is compulsory and contains 10 question (50 words), at least three questions from each unit, each question is of 3 marks.
3. Part – B (25 marks) is compulsory and contains five questions, at least one from each unit. Candidate is required to attempt all five questions. Each question is of 5 marks (100 words).
4. Part – C (45 marks) contains six question, two from each unit. Candidate is required to attempt three questions in all one from each unit. Each question is of 15 marks (400 words).

Course Contents :**Unit – I**

Definition, scope, concepts and recent trends in economic geography, relation of economic geography with economics. Simple model of economy, Spa-

tial structure of economy, Location of economic activities and spatial organization of economy, Sectors of economy – Primary, Secondary and Tertiary; Economic Region – concept and methods of delimitation

Factors of location of economic activities : physical, social, economic and cultural.

Unit-II

Concept and techniques of delimitation of agricultural regions, Crop combination and diversification von Thunen's model and its modifications. Spatial distribution of energy and each source of power as supplementary to the other.

Classification of industries; Resource based and Footloose industries, Theories of industrial location – Weber, Losch and Isard; Case studies of selected industries Iron and Steel, Aluminum, Chemical, Oil refining and Petrochemical, Engineering, Textile etc.

Unit-III

Modes of transportation and transport cost; accessibility and connectivity : international, inter and intraregional; Comparative cost advantages. Typology of markets, Market network in rural societies, Market system in urban economy, role of market in the development of trade and commerce, Dynamics of world trade and investment.

Economic Development of India, Regional disparities, Impact of green revolution on Indian economy, Globalization and Indian economy and its impact on environment.

Suggested Books :

1. Lloyd and Dicken : Location in Space- Theoretical Approach to Economic Geography.
2. McCart and Lindberg : A Preface to Economic Geography.
3. Smith, D.E. : Industrial Location – An Economic Geographical Analysis.
4. Berry Conkling & Ray : The Geography of Economic Systems, Prentice Hall.
5. Smith, J.C. and Philip, M.O. : Industrial and Commercial Geography, Henry Halt.
6. Miller, E.W. : A Geography of Manufacturing
7. Bengston, N.A. & Royen M.V. : Fundamentals of Economic Geography, Prentice Hall, New York.
8. Alexander, J.W. Economic Geography, Prentice Hall, New York.
9. Guha & Chatterjee : A New Approach to Economic Geography.
10. Remmer, T.H. & others : World Economic Geography.

11. Robson, H. : Economic Geography, MAC. Donald, London.
12. Thoman, R.S. : The Geography of Economic Activity, McGraw Hill, New York.
13. Zimmerman, E.W. : World Resources and Industries, Harper and Co., New York.
14. Robertson D. (ed) : Globalisation and Environment, E. Elgan Co., U.K. 2001.
15. Wheeler J.O. : Economic Geography, John Willey, New York, 1995.
16. Dreze, J. and Sen, A : India – Economic Development and Social Opportunity, Oxford University Press, New Delhi, 1996.
17. काशीनाथ सिंह : आर्थिक भूगोल के मूल तत्व, वसुन्धरा प्रकाशन गोरखपुर।
18. पुरुशोत्तम जैन : आर्थिक भूगोल, रस्तोगी प्रकाशन, मेरठ।
19. जैन. एस.सी. : सैद्धान्तिक आर्थिक भूगोल.

PAPER-IV (a) : QUANTITATIVE TECHNIQUES IN GEOGRAPHY

3hr. duration

Max. Marks : 100

Note :-

1. Each theory paper is divided into three independent units. The question paper is divided into three parts, Part –A, Part-B and Part-C
2. Part – A (30 marks) is compulsory and contains 10 question (50 words), at least three questions from each unit, each question is of 3 marks.
3. Part – B (25 marks) is compulsory and contains five questions, at least one from each unit. Candidate is required to attempt all five questions. Each question is of 5 marks (100 words).
4. Part – C (45 marks) contains six question, two from each unit. Candidate is required to attempt three questions in all one from each unit. Each question is of 15 marks (400 words).

Course Contents :

Unit – I

Meaning and concept of research, Research problem, meaning and identification, Hypothesis and testing of hypothesis, Research design and types of research, writing research report, Sampling frame and procedure, sampling size and error, Measure of central tendency-Mean, Median, Mode.

Unit – II

Measure of dispersion, Standard deviation and Mean deviation, Interpolation, Extrapolation, Correlation, Spearman's rank and product movement corre-

lation, regression analysis, simple LINEAR, Construction of regression line, Multiple regression and correlation, Regression residuals.

Unit - III

Probability : Theory of probabilities-law of addition and multiplication, probabilities of distribution : Normal, Binomial, Poisson-sampling : Basic concepts,

Hypothesis Testing : Needs and types of hypotheses-goodness of fit and significance and confidence levels, Chi-square test, binomial test, t-test, Mann-Whitney U test, F test, Analysis of Variance (ANOVA), Principles and elements of factor analysis ,principle component analysis.

Books Recommended :

1. David Unwin : Introductory Spatial Analysis, Methuen, London, 1981.
2. Gregory, S. : Statistical Methods and Geographer, Longman, London, 1978.
3. Hammond R and P.S. McCullagh : Quantitative Techniques in Geography : an Introduction, Clearendan Press, Oxford, 1974.
4. John P. Cole and Cuchlanie A.M. King : Quantitative Geography, John Wiley, London, 1968.
5. Johnston R.J. : Multivariate Statistical Analysis in Geography, Longman, London, 1973.
6. Kaustoniannis : Theory of Econometrics, Mcmillan, London, 1973.
7. Maurice Yeats : An Introduction to Quantitative Analysis in Human Geography, McGraw Hill, New York, 1974.
8. Petter Haggett, Andrew D.Cliff, & Allan Frey, : Location Methods.

PAPER-IV (b) : GEOGRAPHY OF SOUTH ASIAN COUNTRIES

(BANGLADESH, NEPAL, PAKISTAN, BHUTAN, SHRI LANKA, MALDIVE)

3hr. duration

Max. Marks :100

Note :-

1. Each theory paper is divided into three independent units. The question paper is divided into three parts, Part -A, Part-B and Part-C
2. Part - A (30 marks) is compulsory and contains 10 question (50 words), at least three questions from each unit, each question is of 3 marks.
3. Part - B (25 marks) is compulsory and contains five questions, at least one from each unit. Candidate is required to attempt all five questions. Each question is of 5 marks (100 words).

4. Part - C (45 marks) contains six question, two from each unit. Candidate is required to attempt three questions in all one from each unit. Each question is of 15 marks (400 words).

Course Contents :

Unit - I

Geographical realms of South Asia, Homogeneity and diversity, SAARC, Study of Pakistan under the following heads-geographical and political units, climate and climatic regions, vegetation, agriculture, livestock, mineral resources, power resources, industries, trade, population and natural regions, political relations.

Unit - II

Study of Bangladesh and Bhutan under the following heads-geographical and political units, climate and climatic regions, vegetation, agriculture, livestock, mineral resources, industries, trade, population, natural regions, political relations.

Unit - III

Study of Nepal, Shri Lanka and Maldive Islands under the following heads-geographical and political units, climate, vegetation, agriculture, livestock, industries and economy, trade, population, political relations.

Books Recommended :

1. Ahmed, N. (1958) Economic Geography of East Pakistan, Oxford University Press London.
2. Spencer, J.E. (1962) Asia East by South, John Wiley and Sons, London.
3. Kulshrestha, S.H. (1983) Simple Geography of Nepal, Educational Enterprise Pvt. Ltd. Kathmandu.
4. Rashid, R.E. (1977) Geography of Bangladesh, University Press Ltd. Bangladesh.
5. Johnson, B.L.C. (1975), Bangladesh, Heinemann Education Books, London.
6. Johnson, B.L.C. (1970) : Geography of South Asia.
7. Cooke : Ceylon.
8. Karan, P.P. : The Himalyan Kingdom.

PAPER-IV (c) : REGIONAL PLANNING

3hr. duration

Max. Marks :100

Note :-

1. Each theory paper is divided into three independent units. The question

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paper is divided into three parts, Part -A, Part-B and Part-C

2. Part - A (30 marks) is compulsory and contains 10 question (50 words), at least three questions from each unit, each question is of 3 marks.
3. Part - B (25 marks) is compulsory and contains five questions, at least one from each unit. Candidate is required to attempt all five questions. Each question is of 5 marks (100 wrds).
4. Part - C (45 marks) contains six question, two from each unit. Candidate is required to attempt three questions in all one from each unit. Each question is of 15 marks (400 words).

Course Contents :

Unit - I

- (A) Regional Planning : Term, Task, Scope and objective.
- (B) Specific problems : Task and scope of regional Planning in developing countries.
- (C) Principles and Determination of Regional Planning, Significance of the ecological potential of a country's region or regional planning.
- (D) Importance of the density, distribution and development in population for regional planning.

Unit - II

- (A) Significance of the term 'Integration' (Political, Economic, Social and Spatial) for regional Planning.
- (B) Importance of the political system for regional planning.
- (C) Significance of the factor, adaptation of development of different social classes of the population for regional planning.

Unit - III

Methods of Regional Planning :

- (a) Factor Analysis.
- (b) Comparative Cost-analysis.
- (c) Industrial complex and analysis.
- (d) Shift analysis.

GEOGRAPHY PRACTICAL

Max. Marks : 100

Laboratory Work (Total 8 hrs. per batch of 15 candidates spread over two days.)

Distribution of Marks will be as follows :

1. Laboratory and Map Work Test (4hours duration)

50 Marks

(5 problems out out of 6 problems)

2. Record work and viva-voce (20+10) (2 hour) 30 Marks
 3. Research Project Report & viva-voce (15+5) (2 hour) 20 Marks
- (Based on Environmental problem)

Total

100 Marks

Note: Record work of minimum 25 sheets must be prepared by students and checked & signed by teacher with date, otherwise students will be responsible. Students must write his/her name on every sheet. The teacher should give fresh exercise every year, so that the student may not undertake tracing of old exercise.

Course Content :

Laboratory and Map Work:

1. The art and Science of cartography, history of maps, materials, techniques and preparation of maps.
 - I. Enlargement. Reduction and Finding of Area of Maps. Use of Planimeter.
 - II. Elementary Trigonometry.
2. Map Projections- General principles, classification and choice of projections, construction, properties, merits and demerits, limitations and use of the following projections :

Mathematical construction of the following projections -

I. Conical Projections :

1. Equal area with on standard parallel (Lambert's Projection)
2. Equal area with two standard Parallels (Albert's Projection)
3. Bonne's
4. Polyconic
5. International.

II. Cylindrical Projections

1. Cylindrical Equal Area
2. Mercator's
3. Gall's Stereographic

III. Zenithal Projections :

1. Gnomonic - Polar case Eq. case.
2. Stereographic - Polar case
3. Orthographic - Polar case & Eq. case.
4. Equal area - Polar case & Eq. case.
5. Equidistant - Polar case & Eq. case.

IV. Conventional Projections :

1. Sinusoidal
2. Mollweide
3. Interrupted Mollweide and Goode's
4. Interrupted SansonFlamsteed (Homolosine)

Projections suitable for map of India.

3. Interpretation of Weather Maps & Diagrams :

Interpretation of Weather maps and weather forecast. Climograph – Taylor's / Foster's. Climatograph, Compound windrose, Wind-Star diagram. Rainfall dispersion diagram, Water Budget diagram.

4. Statistical Analysis :

Computation of data, preparation of frequency tables; graphical representation of data- histograms and Ogives, Finding skewness, computation of mean, median and mode, standard deviation and Lorenz Curve, correlation – Spearman's & Carl Pearson's, Semi-log and log graphs.

Quantitative Techniques : Theoretical basis of nearest neighbor analysis, practical exercise on nearest neighbor analysis, Network analysis, locational analysis of urban centres Coefficient of variation.

5. Maps and Diagrams :

Maps-Isopleths, choropleth, chorochromatic, isochrones and population potential surface maps, Sten-de-Geer's and Stilgen-Baur's method. Diagram-Population pyramids (all types), Value-area cartogram, Triangular diagram, Block & Sphere, Ergograph – simple and ogilvies's. (All these be computed from the statistical data, preferably based on district or tehsil unit areas)

6. Project Report :

A candidate is to prepare project report of a village area. The candidate is free to select any supervisor amongst the staff members of the project. A supervisor can take only 5 candidates. The project should be based on primary data obtained by the candidate. The data should be represented by suitable cartographic methods.

Books Recommended

1. Robinson, A.H. et.al. : Elements of Geography, John Willey and Sons, U.S.A., 1995.
2. Sarkar, AK, : Practical Geography – A Systematic Approach, Oriental Longman, Calcutta, 1997.
3. Khan, Z.A. : Text Book of Practical Geography, Concept, New Delhi 1998.

4. Monkhouse, E.J. and Wilkinson, H.R. : Map and Diagrams, Methuen, London 1994.
5. Singh, R.L. : Elements of Practical Geography, Kalyani Pub, New Delhi.
6. Steer, J.A. : Map Projections, University of London Press, London.-
7. जे.पी. शर्मा प्रायोगिक भूगोल, रस्तोगी प्रकाशन, मेरठ।
8. इन्द्रपाल एवं माथुर : मानचित्र प्रक्षेप, राजस्थान हिन्दी ग्रंथ अकादमी।

MA / Msc. FINAL

PAPER -V : ADVANCED GEOGRAPHY OF INDIA

3hr. duration

Max. Marks :100

Note :-

1. Each theory paper is divided into three independent units. The question paper is divided into three parts, Part –A, Part-B and Part-C
2. Part – A (30 marks) is compulsory and contains 10 question (50 words), at least three questions from each unit, each question is of 3 marks.
3. Part – B (25 marks) is compulsory and contains five questions, at least one from each unit. Candidate is required to attempt all five questions. Each question is of 5 marks (100 words).
4. Part – C (45 marks) contains six question, two from each unit. Candidate is required to attempt three questions in all one from each unit. Each question is of 15 marks (400 words).

Course Contents :

Unit – I

India in the context of south-east and south Asia; a land of diversities; unity within diversities.

Physiographic regions, geological structure, drainage systems, soils, vegetation, origin and mechanism of Indian monsoon, climatic classifications, identification of drought and flood prone areas.

Population- distribution, density, growth, population problems and policies, tribal areas and their problems, Gender discrimination and empowerment of women.

Unit – II

Resources – conservation and utilization of land, mineral, water, biotic and marine resources. Agriculture land use pattern: green revolution and its

impact of Indian Agriculture. Agriculture infrastructure – irrigation, fertilizers and seeds. Dry zone Agriculture, Industry- factors of localization, classification, detailed study of the following – iron & steel, cement, fertilizer, paper and pulp and sugar industries, study of the network of roadways, railways, airways and waterways. Regional disparities in development in India.

Basis of regional planning divisions of India – macro and meso regions of India and their comparative analysis, Regional planning of rural and urban regions.

Unit – III

Study of Rajasthan under the following heads – relief, climate, vegetation, soils, agricultural development, irrigation, mineral and power resources, industrial development.

Detailed study of the following regions with these heads – physical, social & cultural environment and economic development : (1) Marusthali (2) Aravali (3) Bangar (4) Hadoti Plateau. Status of women in Rajasthan – changing aspects of demographic, social, economic, health and nutrition. Regional disparities in development in Rajasthan and suggestions.

Books Recommended :

1. Govt. of India : Five Year Plans of India.
2. Sharma & Coutino : Economic and Commercial Geography of India, Vikas, Delhi,
3. निगम एम.एन. : राजस्थान का भूगोल, राजस्थान हिन्दी ग्रन्थ अकादमी, जयपुर।
4. भल्ला, एल.आर. : राजस्थान का भूगोल, कुलदीप प्रकाशन, जयपुर।
5. शर्मा, एच.एस. : राजस्थान का भूगोल, पंचशील प्रकाशन, जयपुर।
6. Singh, R.L. : India-A Regional Geography N.G.S.I. Varanasi, 1971.
7. Galyna and SenGupta : Economic Regions and Regionalisation in India. 1968.
8. Choudary, M.R. : Indian Industries Development and Location,
9. Spate, O.H.K. : Geography of India and Pakistan, Methuen & Co, London.
10. Krishna, M.S. : Geology of India and Burma, Law Journal Office, Madras.
11. Kumar, L.S.S. and other : Agriculture in India – Vol.I & II, Asia Publishing House, Bombay.
12. Indian Year Book (Latest Edition) : Publication Division, Delhi.
13. Irrigation Atlas of India.
14. Chatterji, S.B. : Climatology of InaiClacutta University, Calcutta.
15. Sharma, T.R. : Location of industries of India, Hindi, Kitah, Bombay.
16. Gazetteers of India : Publication Division, New Delhi.

3hr. duration

Max. Marks :100

Note :-

1. Each theory paper is divided into three independent units. The question paper is divided into three parts, Part –A, Part-B and Part-C
2. Part – A (30 marks) is compulsory and contains 10 question (50 words), at least three questions from each unit, each question is of 3 marks.
3. Part – B (25 marks) is compulsory and contains five questions, at least one from each unit. Candidate is required to attempt all five questions. Each question is of 5 marks (100 words).
4. Part – C (45 marks) contains six question, two from each unit. Candidate is required to attempt three questions in all one from each unit. Each question is of 15 marks (400 words).

Course Contents :

Unit – I

Nature and scope of Urban Geography, Origin and growth of towns during ancient, Medieval and Modern period. Factors affecting the growth, site and situation, Chief characteristics of modern town – Conurbation and Megalopolis. Trends of Urbanization in India since 1901. Spatial pattern and distribution of urban centers, Central Place Theory, Rank-size relationship.

Unit – II

Functional classification of cities, Urban economic base – the basis and non-basis concept, Urban hierarchy based on functions, Urban Morphology – Centrifugal and centripetal forces, Theories of urban growth and structure, Morphology of Indian cities and its comparison with western cities, Urban Land use-city core, commercial, residential and industrial areas.

Unit – III

Contemporary urban issues and problems, Urban policies. City –Region Relationship – Umland, Rural-Urban fringe, suburbs, satellite town, Green Belt, Garden city, Principles of town planning, Smart city, Principles of Regional Planning, Master Plan –preparation, implementation, obstacles.

Books Recommended:

1. Taylor, G. : Urban Geography Mathuen & Co., London.
2. Geddes : Study in City Development.
3. Singh, R.L. : Banaras – A study in Urban Geography, Students Friends

4. A.E. Smailes : The Geography of Towns, Hutchinson, University Library, London.
5. Dickinson, R.E. : City Region and Regionalism, Routeledge and Kegan Paul London.
6. Harold, M. Mayer : Readings in Urban Geography, Central Book Depot, Allahabad.
7. V.L.S. Prakash Rao : Towns of Mysore State, Statistical Publishing House, Calcutta.
8. Shah Manzoor Alam : Hyderabad and Secunderabad Twin City – Studies in Urban Geography, Allied Publishers, Delhi.
9. Singh, R.L. : Bangalore and Urban Survey, National Geographical Society of India, B.H.U., Varanasi.
10. Sovani, N.V. : Urbanization and India, Asia Publishing House, Bombay.
11. Hudson, E.S. : Geography of Settlement.
12. Johnson, R.H. : Urban Geography.
13. Ambedkar : Town and Country Planning.
14. Turner, R. : India's of Urban Future, Oxford University Press, Bombay, 1962
15. Carter. The Study of Urban Geography, Edward Arnold, London, 1972.
16. Northan, R.C. : Urban Geography, John Willey & Sons, New York, 1976.
17. Gribbs, J.P. : Urban Research Method, Von Nostrand Co. Inc. Toronto, 1961.
18. जोशी, रतन : नगरीय भूगोल, राजस्थान हिन्दी ग्रन्थ अकादमी, जयपुर।
19. ओम प्रकाश सिंह : नगरीय भूगोल।
20. बंसल : नगरीय भूगोल।

PAPER-VII : Anyone of the Following

PAPER – VII (a) : BIO-GEOGRAPHY

3hr. duration

Max. Marks :100

Note :-

1. Each theory paper is divided into three independent units. The question paper is divided into three parts, Part –A, Part-B and Part-C
2. Part – A (30 marks) is compulsory and contains 10 question (50 words), at least three questions from each unit. each question is of 3 marks.

3. Part – B (25 marks) is compulsory and contains five questions, at least one from each unit. Candidate is required to attempt all five questions. Each question is of 5 marks (100 words).
4. Part – C (45 marks) contains six question, two from each unit. Candidate is required to attempt three questions in all one from each unit. Each question is of 15 marks (400 words).

Course Contents :

Unit – I

Meaning and scope of Bio-Geography, History of Zoo-Geography, Plant Geography. Ecology and Habitat, the habitat factors, Climatic factors, plant response to environment, Barriers to distribution and means of dispersal of plants.

Unit-II

Types of Plant Communities in general, factors controlling forest distribution. Characteristics of equatorial and temperate forests and grasslands, their distribution.

Climatic change and their effect on the plant cover, conditions of existence for animals.

Unit – III

Barriers to distribution and means of dispersal of animals. Types of Isolation, effect of geographic Isolation, Distribution of animals. The Zoo Geographical regions.

Biodiversity-types, value, levels, hotspots, threats and conservation.

Aquatic environment and life, marine and fresh water fauna. Vegetation and floral regions of India, economic importance National forest policy of India. Conservation of wild life and forests, soil erosion and conservation.

Pollution & its effect on wild life and vegetation.

Books Recommended :

1. Newbegin : Plant and Animal Geography.
2. Cline : Foundation of Plant Geography.
3. G.Ponald : The Geography of Flowering Plants.
4. Darlington : Zoo-Geography.
5. Schimper : Plant Geography.
6. Hora, S.L. : Fundamental Conception of Zoo-Geography. N.G.S.I. Banaras.
7. Hora, S.L. : Terrestrial Fishes and the Significance of their Distribution in Geographical Studies, N.G.S.J., Banaras.

PAPER-VII (b) : AGRICULTURAL GEOGRAPHY**3hr. duration****Max. Marks :100****Note :-**

1. Each theory paper is divided into three independent units. The question paper is divided into three parts, Part –A, Part-B and Part-C
2. Part – A (30 marks) is compulsory and contains 10 question (50 words), at least three questions from each unit, each question is of 3 marks.
3. Part – B (25 marks) is compulsory and contains five questions, at least one from each unit. Candidate is required to attempt all five questions. Each question is of 5 marks (100 words).
4. Part – C (45 marks) contains six question, two from each unit. Candidate is required to attempt three questions in all one from each unit. Each question is of 15 marks (400 words).

Course Contents :**Unit – I**

Nature, scope, significance and development of agricultural geography.

Approaches to the study of agricultural geography : Commodity, systematic and regional. Origin and dispersal of agriculture. Sources of agricultural data. Determinants of agricultural land use – Physical, economic, social, and technological. Land holding and land tenure systems, Land reforms, land use policy and planning.

Unit – II

Selected agricultural concepts and their measurements : cropping pattern, crop concentration, intensity of cropping, degree of commercialization, diversification and specialization, efficiency and productivity, crop combination regions and agricultural development. Green revolution – its impact and consequences. Theories of agricultural location based on several multi- dimensioned factors: Von Thunen's theory of agricultural location and its recent modifications, Whittelsey's classification of agricultural regions, land use and land capability.

Unit – III

Agriculture in India – Land-use and shifting cropping pattern. Regional pattern of productivity in India. Green Revolution. White Revolution. Food

deficit and Food surplus regions, nutritional index. Specific problems in Indian agriculture and their management and planning. Agricultural Policy in India.

Contemporary issues; Food, nutrition and hunger, food security, drought and food security, food aid programmes; environmental degradation, role of irrigation, fertilizers, insecticides and pesticides, technological know-how. Employment in the agricultural sector : landless labourers, woman, children occupational health and agricultural activates.

Books Recommended :

1. Gregor, H.P. : Geography of Agriculture, Prentice Hall, New York, 1970.
2. Grigg, D.B. : the Agricultural Systems of the World. Cambridge University Press, New York, 1974.
3. Manmon, A.M. : Agriculture and Environment Changes, John Wiley, London, 1995.
4. Morgan W.B. and Norton, R.J.C. : Agricultural Geography. Mathuesen London, 1971.
5. Morgan, W.B. : Agriculture in the Third World – A Spatial Analysis Westview Press, Boulder, 1978.
6. Sauer, C.O. : Agricultural Origins and Dispersals, M.L.T. Press, Mass, U.S.A., 1969.
7. Singh, J. and Dhillon, S.S. : Agricultural Geography. Tata McGrow Hill Pub, New Delhi, 1988.
8. Tarrant, J.R. : Agricultural Geography. Wiley, New York, 1974.
9. Stamps, L.D. Kostro Wisckie : Land of Britain, its Use and Misuse, World Types of Agriculture, Polish Academy, Warsaw.
10. Shafi, M. : Land Use in Eastern U.P., Aligarh University Press.
11. Ali Mohammed : Situation of Agriculture Development in India, Concept Publicatin Co., Delhi.
12. SymonLeslie : Agricultural Geography, G.Bell and Sons, Ltd, London, 1967.
13. प्रमिला कुमार : कृषि भूगोल, मध्य प्रदेश हिन्दी अकादमी।
14. सिंह, ब्रजमूषण : कृषि भूगोल, गोरखपुर

PAPER-VII (c) : POPULATION GEOGRAPHY**3hr. duration****Max. Marks :100****Note :-**

1. Each theory paper is divided into three independent units. The question paper is divided into three parts, Part –A, Part-B and Part-C
2. Part – A (30 marks) is compulsory and contains 10 question (50 words), at

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least three questions from each unit, each question is of 3 marks.

3. Part – B (25 marks) is compulsory and contains five questions, at least one from each unit. Candidate is required to attempt all five questions. Each question is of 5 marks (100 words).
4. Part – C (45 marks) contains six question, two from each unit. Candidate is required to attempt three questions in all one from each unit. Each question is of 15 marks (400 words).

Course Contents :

Unit – I

Population geography : definition, nature and scope and interdisciplinary study, theories of population growth – pre-Malthusian views, Malthus' theory, Marxist theory, Optimum population theory, demographic transition model, world population distribution, growth trends and determinants.

Unit – II

Migration : history, theories, trends and patterns of international and internal migration, population dynamics: fertility and mortality – measurement, determinants and distribution, world population composition and characteristics, world population urbanization, trend pattern and challenges.

Unit – III

India – population characteristics and relationship with development : population control movement and policies : urbanization and population explosion; post independence development – reproductive and child health programme, contemporary issues – ageing of population; declining sex ratio; hiv/aids.

Books Recommended :

1. Chandra, R.C. : Population Geography. Kalyani Publishers, Delhi.
2. Garnier, J.B. : Geography of Population. Longman, U.K.
3. Hassan, M.I. : Population Geography. Rawat Publication, Jaipur.
4. Newbold, K.B. : Population Geography Tools and issues, Rowman & Littlefield Publications, London.
5. Woods, R. : Theoretical Population Geography. Longman, U.K.

PAPER-VIII (a) : POLITICAL GEOGRAPHY

3hr. duration

Max. Marks :100

Note :-

Each theory paper is divided into three independent units. The question

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paper is divided into three parts, Part –A, Part-B and Part-C

2. Part-A (20 marks) is compulsory and contains 10 questions (20 words), at least three questions from each unit, each question of 2 marks.
3. Part-B (20 marks) is compulsory and contains five questions, at least one from each unit. Candidate is required to attempt all five questions. Each question is of 5 marks (50 words).
4. Part-C-(60 marks) contains six questions, two from each unit Candidate is required to attempt three questions one from each unit. Each question is of 20 marks (400 words)

Course Contents :

Unit – I

Definition, nature, scope, subject matter and recent development in political geography; approach, to study; major schools of thought. Political Geography and Geopolitics, Changing nature of international and national terrorism. Geographic Elements and the State : Physical Elements; Human elements; Economic elements.

Unit – II

Themes in Political Geography : State, Nation, Nation-state and Nation Building, Frontiers and boundaries, Colonialism Neocolonialism, Federalism and other forms of governance. The changing patterns of World Powers Perspectives on core-periphery concept, Conflicts and cooperation.

Geopolitical significance of India ocean : Political geography of SAARC Region.

Unit – III

Political geography of contemporary India with special reference to : The changing political map of India; Unity-diversity; centripetal and centrifugal forces; stability & instability; Interstate issues (like water dispute & rivarian claims) and conflict resolutions insurgency in Border States; Emergence of New States; Federal India : Unity in Diversity.

Election Geography : Nature, approaches, election in national perspective, voting behavior and voting system in India. World politics and international terrorism.

Books Recommended :

1. Alexander, L.M. : World Political Patterns, John Murray and Co., London.
2. Boggs, S.W. : International Boundaries, Columbia University Press, New York

3. East, W.G. and Moodie A.E. : The Changing World, George G. Harrap and Co., London.
- 2 4. East, W.G. and Spate, O.H.K. : The Changing Map of Asia, Methuen and Co., London.
- 3 5. Moodie, A.E. : Geography behind Politics, Hutchinson's University Library, London.
6. Pearch, C.E., et.al. : World Political Geography, Thomas, Y.Crowel Co., New York.
- 4 7. Valkenburg, S.Y. & Suz. C.L. : Elements of Political Geography, Second Edition, Eastern Economy Edition Prentice Hall & Co.Ltd, New York.
8. S.B. Cohen : Geography and Politics and Geography Relationship, Prentice Hall, New York.
9. Blij, D.Jeo : Systematic Political Geography, John Willey & Sons, New York.
10. Bergiman, Edward E. : Modern Political geography, W.M.C. Brown Company Publishers.
11. Dikshit, R.D. : Political Geography – A Contemporary Perspective, Tata McGraw Hill Publishing Co.Ltd., New Delhi.
12. Sukhwai, B.L. : India – A Political Geography, Allied Publishers, New Delhi.
13. भट्टाचार्य एवं आच्छा : राजनैतिक भूगोल, राजस्थान हिन्दी ग्रंथ अकादमी।
14. सक्सेना, हरि मोहन : राजनैतिक भूगोल, रस्तोगी एण्ड कम्पनी, मेरठ।

PAPER-VIII (b) : CLIMATOLOGY & OCEANOGRAPHY

3hr. duration

Max. Marks :100

Note :-

1. Each theory paper is divided into three independent units. The question paper is divided into three parts, Part –A, Part-B and Part-C
2. Part – A (30 marks) is compulsory and contains 10 question (50 words), at least three questions from each unit, each question is of 3 marks.
3. Part – B (25 marks) is compulsory and contains five questions, at least one from each unit. Candidate is required to attempt all five questions. Each question is of 5 marks (100 words).
4. Part – C (45 marks) contains six question, two from each unit. Candidate is required to attempt three questions in all one from each unit. Each question is of 15 marks (400 words).

Course Contents :

Unit – I

The basis of modern climatology, composition and layered structure of atmosphere, atmospheric energy : air temperature, the energy balance, atmo-

spheric pressure and pressure belts, wind circulation : the planetary wind system, monsoon winds and local winds, adiabatic non-adiabatic processes, stability and instability, evaporation, factors, affecting evaporation, humidity and its expression, clouds : types and characteristics, precipitation : types and world precipitation pattern.

Unit – II

Air masses, fronts ; Cyclones (tropical and temperate) and anticyclones. Koppen and Thonthwaite classification of world climates; major climatic types : Equatorial, Savanna, Monsoon, Mediterranean and West European.

Unit – III

Scope of oceanography, horizontal and vertical distribution of temperature, salinity, factors and distribution patterns, dynamics of oceanic water : currents, sea waves, tides and tidal theories currents of Atlantic ocean, Pacific ocean, Indian ocean and other seas, oceanic bottom relief, (Atlantic, Pacific and Indian oceans) oceanic deposits, coral reef formation, atolls and coral islands, theories of coral reef formations, Man and oceans, marine resources-biotic and abiotic, (mineral and energy resources) and their utilization.

Books Recommended :

1. Critchfield, H.J. 1983 : General Climatology. Prentice-Hall of India, New Delhi.
2. Glantz, M.H., 2001 : Currents of Change : Impacts of El Nino and La Nina Climate and Society. Cambridge University Press, Cambridge.
3. Oliver, J.E. and Hidore, J.J. 2011: Climatology : An Atmospheric Science, Dorling Kindersky. India Pvt. Ltd., Licenceses of Pearson education in South Asia, New Delhi.
4. Sharma, R.C. and Vatal, M. 1999 : Oceanography of Geographers . Chaitanya Publishing House, Allahabad.
5. सिंह, एस. 2006 : जलवायु विज्ञान, प्रयाग पुस्तक भवन, इलाहाबाद

PAPER-VIII (c) : REMOTE SENSING AND GIS

3hr. duration

Max. Marks :100

Note :-

1. Each theory paper is divided into three independent units. The question paper is divided into three parts, Part –A, Part-B and Part-C
2. Part – A (30 marks) is compulsory and contains 10 question (50 words), at least three questions from each unit, each question is of 3 marks.

3. Part – B (25 marks) is compulsory and contains five questions, at least one from each unit. Candidate is required to attempt all five questions. Each question is of 5 marks (100 words).
4. Part – C (45 marks) contains six question, two from each unit. Candidate is required to attempt three questions in all one from each unit. Each question is of 15 marks (400 words).

Course Contents:-

Unit – I

Historical development of Remote sensing as a technology. Relevance of remote sensing in Geography, Concepts and basics : Energy source, energy and radiation, principles, energy interactions in the atmosphere and earth surface features. Remote sensing systems : platforms, sensors and radiation records. Air photos and photogrammetry : Elements of photographic system : type, scales and ground coverage, resolution, radiometric characteristics, films, filters, aerial cameras, film exposures, geometric fundamentals of photogrammetry : elements of vertical photographs, relief displacement, image parallax, stereoscopic, orthophotos airphoto interpretation : shape, size, pattern tone, texture, shadows, site advantage and limitation & remote sensing & its comparison with map.

Unit – II

Satellite Remote Sensing : History and development of various types of satellite and space programme. Image, processing : types of imagery, techniques of visual interpretation, ground verification, transfer of interpreted thematic information of maps; Digital processing : rectification and resolution, Image enhancement-contrast manipulation, classification supervised and unsupervised. post classification analysis.

Unit – III

Applications : Air photo and image interpretations and mapping forest and wild life, mines & geology, geomorpho.

Land use and land cover soil, land evaluation ; weather studies water resources ; hazard management and environmental management. GIS introduction, definition & scope, its application in various fields & planning.

Books Recommended :

1. American Society of Photogrammetry : Manual of Remote sensing. ASP, Falls Church, VA 1983. Vol. I,II.
2. Barrett, E.C. and L.F. Curtis : Fundamentals of Remote Sensing and Air Photo interpretation, McMillan, New York, 1992.
3. Campbell, J.: Introduction of Remote Sensing, Guilford, New York, 1989.

4. Curran, P.J. : Principles of Remote Sensing, Longman, London, 1985.
5. Hord, R.M. : Digital Image Processing of Remotely Sensed Data, Academic, New York, 1989.
6. Luder, D. : Aerial Photography Interpretation : Principles and Application, McGraw Hill, New Hork, 1959.
7. Pratt, W.K. : Digital Image Processing. Willey, New York, 1978.
8. Rao, D.P. (eds.) : Remote Sensing for Earth Resources, Association of Exploration Geophysicist, Hyderabad, 1998.
9. Thomas, M. Lilies and Ralph, W.Kefer : Remote Sensing and Image Interpretation John Willey & sons, New York, 1994.
10. Chouhan, T.S. & Joshi, K.N. : Applied R.S. and Photo Interpretation, VigyanPrakashan, Jodhpur.
11. Wolf, Paul, K. : Elements of Photogrammetry, McGraw Hill Book Co.
12. Gautam, N.C. SPGU. Technology of Geography, N.R.S.A., Hyderabad.
13. Singh, S. : Remote Sensing Technology, Sa-Publication Jodhpur.
14. Barrett, E.C. and L.F. Curtis : Fundamentals of Remote Sensing and Air Photo Interpretation, McMillan, New York, 1992.
15. Rao, D.P. (eds) : Remote Sensing for Earth Resources, Association of Exploration Geophysicists, Hyderabad, 1998.

Dissertation on Geographical Problem (In lieu of Paper VII & VIII)

N.B. : The candidates offering this paper will be required to submit dissertation at least three weeks before the commencement of the theory examination. It will be examined by a board of two examiners. Three copies of dissertation must be submitted to the University, out of which one copy will be returned to the Department/College and one of the Supervisor. The dissertation should exclusively be based on field work and statistical analysis, as far as possible and be prepared under the guidance of a postgraduate teacher of five years standing. The

faculty members will be able to supervise maximum three candidates for dissertation.

The volume of the dissertation should be about 110-115 pages.

GEOGRAPHY PRACTICAL-FINAL

1.	Written Test on Lab. Work	For Hrs. (4 Qs.)	40 Marks
2.	Record Work and Viva-Voce.	(14+16)	20 Marks
3.	Field Survey and Viva-Voce.	For Hrs. (14+16)	20 Marks
4.	Camp Work and Viva-Voce.	7 Days (14+16)	20 Marks
	Total		100 Marks

Note : Student will have to attempt four questions out of six questions in written paper of Practical Examination.

Course Contents :

1. The Art of surveying History of surveying, scope, utility and problems classification of surveying.
2. Methods and techniques of representation of relief :
 - (a) Methods and techniques of depicting relief.
 - (b) Profile, gradients and calculation of slopes.
 - (c) Block diagrams, field sketching, serial profile, hypsographic curves altimetry frequency graphs.
3. Interpretation of topographical maps :

A brief history of topographical maps of the world with special reference of India and their interpretation, detailed study of such toposheets which depict typical geomorphology and cultural landscapes.
4. Air photo interpretation and exercise on the determination of height of plan, parallax, number of runs and number of photographs, knowledge of stereoscopic vision, mosaics; types of cameras, emulsions and stereoscopes. Interpretation and identification of cultural and physical features on serial photographs. Photo interpretation of land use and settlements in the field.
5. Field Surveying -
 - a. Theodilite : Its parts and function, use of traverse, computation independent coordinates.

- b. Plane table and clinometers - Small area surveys. Traverse, resectioning : two and three point problems.
- c. Dumpy level - Classification of leveling. Profile, precise and other types of leveling. Practical countouring cross sectioning
- d. Abeny level - Use and application of Abney level.
6. Camp Work : A topographical survey of a settlement of about 500 acres of land will be done by organizing a camp at least for a week away from the centre of the institution and maps and reports of the same will be prepared. (student are expected to stay in the camp at night)

Books Recommended :

1. Kanethkar, T.P. and Kukkarni, S.V. : Surveying and Leveling Vol. I (A.V. GriaPrakash, Poona)
2. Deshpande, R.S. : A text book of surveying and leveling. (United Book Corporation, Pona).
3. James Clending : Principles and use of surveying (Blackie and Sons Ltd. Glasgow).
4. B.C. Punamia : Surveying and Field Work Vol. I (Standard Book Depot, Delhi)