



पाठ्यक्रम
SYLLABUS

SCHEME OF EXAMINATION AND COURSES OF STUDY

FACULTY OF ARTS & SOCIAL SCIENCE

M.A./M.SC. GEOGRAPHY

M.A./M.Sc. Geography (Prev.) & (Final)

2009-10 से प्रभावी(w.e.f.)

सत्र 2013-14

महर्षि दयानन्द सरस्वती विश्वविद्यालय, अजमेर

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।

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

- Each Theory Paper 3 Hrs. Duration 100 M
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 600 marks Total = 1200 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 all 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 with standing his 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
Second Division 48% the Previous and the Final Examination
 3. If a candidate clears any Paper(s)/Practical(s)/Dissertation prescribed at the Previous and/or 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.
 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 least 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.

M.A./M.Sc. GEOGRAPHY

There 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:-

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- (20 marks) is compulsory and contains 10 questions (20 words), at least three questions from each unit, each question is of 2 marks.
3. Part-B- (20 marks) is compulsory and contains four questions, at least one from each unit. Candidate is required to attempt all four 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).

MA/M.Sc. Previous

All four papers are compulsory.

Paper I : Evolution of Geographical thought.	100 Marks
Paper II : Structural and Dynamic Geomorphology	100 Marks
Paper III : Principles and Theory of Economic Geography.	100 Marks
Paper IV : Geography of Environment	100 Marks

Practical -A: - Distribution of marks will be as follows :

1. Laboratory Work Test (4 hours duration) (5 problems out of 6 problems)	50 Marks
2. Record Work & Viva-Voce (20+ 10) (2 hours)	30 Marks
3. Research Project Report & Viva-voce (15+ 5) (2 hours) (Based on Environmental problem)	20 Marks
Total	100 Marks

Practical -B: Distribution of marks will be as follows :

1. Laboratory Work Test (4 hours duration) (5 problems out of 6 problems)	50 Marks
2. Record Work & Viva-Voce (20+ 10) (2 hours)	30 Marks
3. Research Project Report & Viva-voce (15+ 5) (2 hours) (Based on Socio-economic survey camp)	20 Marks
Total	100 Marks

Grand Total 600 Marks

N.B. : 12 hours of teaching 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
Paper VI : Urban Geography	100 Marks
Paper VII : Anyone of the following -	100 Marks

- (a) Bio-Geography
- (b) Agricultural Geography
- (c) Quantitative Techniques in Geography

Paper VIII: Anyone of the following 100 Marks

- (a) Political Geography
- (b) Industrial Geography
- (c) Remote Sensing & G.I.S.

Dissertation: In lieu of paper VII & VIII.

Practical - A : Distribution of marks will be as follows :

1. Laboratory Work (4 hours duration) (5 problems out of 6 problems)	50 Marks
2. Record Work & Viva-voce (20+ 10) (2 hrs.)	30 Marks
3. Computer project & Viva-Voce (15+5) (1 hrs.)	20 Marks
Total	100 Marks

Practical - B : Distribution of marks will be as follows :

1. Laboratory Work (4 hours duration) (5 problems out of 6 problems)	40 Marks
2. Record Work & Viva-voce (20+ 10) (2 hrs.)	30 Marks
3. Field Surveying & Viva-Voce (10+5) (3 hrs.)	15 Marks
4. Surveyed Camp & Viva-voce (10+5) (1 hr.)	15 Marks
Total	100 Marks

Grand Total 600 Marks

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

Instruction for Geography Practical Examination:

1. 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.
2. 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 its viva-voce be based on the original work of the candidate and

not merely producing the record work get done by any other agency. Marks will be deducted for the part of the syllabus not covered.

3. 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 skill.
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 / M.Sc. PREVIOUS

Syllabus:

PAPER-I: EVOLUTION OF GEOGRAPHICAL THOUGHT

3 hrs. 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- (20 marks) is compulsory and contains 10 questions (20 words), at least three questions from each unit, each question is of 2 marks.
3. Part-B- (20 marks) is compulsory and contains four questions, at least one from each unit. Candidate is required to attempt all four 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

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-la-Blache, Brunhes, Demangeon

and Blanchard. Contribution of Mackinder, 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.

Behaviourism 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: Perspectives 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. Harvey, M.E. & Holly: Themes in Geographic Thought, Rawat, Jaipur.
8. Hussain, Majid: Evolution of Geographical Thought, Rawat Publication, Jaipur
9. Hagget, P. : Geography - A Modern Synthesis, Harper International Ed.
10. हुसैन मजिद : भौगोलिक विचारधाराओं का इतिहास रावत पब्लिकेशन्स, जयपुर।
11. कौशिक, एस.डी. : भौगोलिक विचारधारा एवं विधि तंत्र, रस्तोगी प्रकाशन, मेरठ।
12. जैन, एस.एम. : भौगोलिक चिन्तन का विकास, साहित्य भवन, आगरा।

PAPER-II: STRUCTURAL AND DYNAMIC GEOMORPHOLOGY

3 hrs. 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- (20 marks) is compulsory and contains 10 questions (20 words), at least three questions from each unit, each question is of 2 marks.
3. Part-B- (20 marks) is compulsory and contains four questions, at least one from each unit. Candidate is required to attempt all four 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 40 marks (400 words).

Course Contents :

Unit - I

Nature and scope of Geomorphology, Fundamental concepts Geological structures and landforms, uniformitarianism, concept of threshold, earth's interior, isostasy. Earth movements - epeirogenetic and orogenic movements. Forces of crustal instability, plate tectonics, seismicity, vulcanicity, orogenic 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 land suitability classification, hydro-geomorphology, urban geomorphology, environmental geomorphology, geomorphic hazards.

Books Recommended :

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 - A introduction, Clarendon Press, Oxford, 1974.
4. Cotton, C.A. : Geomorphology, John Willey & Sons, New York.
5. Dayal, P. : A Text Geomorphology.
6. Dury, G.H. : The Face of the Earth, Penguin Harmondsworth, 1959.
7. Fairbridge, R.W. : Encyclopedia of Geomorphology, Reinholds, 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: Introduction to Geomorphology.
12. Kale, V. and Gupta, A. : Element 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. Ollier, C.D. : Weathering, Longman, London, 1973.
17. Pity, A.F. : Introduction to Geomorphology, Methuen, London, 1971.
18. Steers, J.A. : Unstable Earth, Methuen & Co., London.
19. Stoddart, D.R. (ed.) : Process and Form in Geomorphology, Routledge, New York, 1996.
20. Skimmer, B.J. & Porter, S.C. : The Dynamic Earth, John Wiley, New York, 1995.
21. Sparks, B.W. : Geomorphology, Longman, London, 1960.
22. Sharma, H.S. (ed.) : Perspectives in Geomorphology, Concept, New Delhi, 1980.
23. Strahler, A.N. : Earth Sciences, Harper and Row Publishers, New York.
24. Strahler, A.M. : Modern Physical Geography, John Willey and Sons, Inc. New York.
25. Singh, S. : Geomorphology, Prayag Publication, Allahabad, 1998.
26. Thornbury, A.K. : Geomorphology, Prentice Hall, New York.
27. Thornbury, W.D. : Principles of Geomorphology, John Wiley, New York, 1960.
28. Wooldridge and Morgan: An Introduction to Geomorphology, Longmans Green & Co., London.
29. सविन्द्रसिंह : भू-आकृति विज्ञान, वसुन्धरा प्रकाशन, गोरखपुर ।
30. कौशिक, एस.डी. : भू-आकृति विज्ञान, रस्तोगी प्रकाशन, मेरठ ।
31. नेगी, बी.एस. : भू-आकृति विज्ञान, रस्तोगी प्रकाशन, मेरठ ।

PAPER-III: PRINCIPLES & THEORY OF ECONOMIC GEOGRAPHY

3 hrs. 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- (20 marks) is compulsory and contains 10 questions (20 words), at least three questions from each unit, each question is of 2 marks.
3. Part-B- (20 marks) is compulsory and contains four questions, at least one from each unit. Candidate is required to attempt all four 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, scope, concepts and recent trends in economic geography, relation of economic geography with economics. Simple model of economy; Spatial 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 delineation, concept of demand and agglomeration.

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 others.

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.

Reference 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. Hodder and Lee : Economic Geography
5. Berry Conkling & Ray : The Geography of Economic Systems, Prentice Hall.
6. Smith, J.C. and Phillip, M.O. : Industrial and Commercial Geography, Henry Halt.
7. Miller, E. W. : A Geography of Manufacturing.
8. Ghose, B.C. : Industrial Location.
9. Bengston, N.A. & Royen M.V. : Fundamentals of Economic Geography,

Prentice Hall, New York.

10. Alexander, J.W. : Economic Geography, Prentice Hall, New York.
11. Guha & Chatterjee : A New Approach to Economic Geography.
12. M.V. Royen and N.A. Bengston: Fundamentals of Economic Geography, Prentice Hall, New York.
13. Remmer, T.H. & other: World Economic Geography.
14. Robson, H. : Economic Geography, M.Sc. Donald, London.
15. Thoman, R.S. : The Geography of Economic Activity, McGraw Hill, New York.
16. Zimmeriman, E.W. : World Resources and Industries, Harper and Co., New York.
17. Robertson D. (ed): Globalisation and Environment, E. Elgan Co., U.K., 2001.
18. Wheeler J.O. : Economic Geography, John Willey, New York., 1995.
19. Dreze, J. and Sen, A. : India - Economic Development and Social Opportunity, Oxford University Press, New Delhi, 1996.
20. काशीनाथ सिंह : आर्थिक भूगोल के मूल तत्व, वसुन्धरा प्रकाशन, गोरखपुर।
21. पुरुषोत्तम जैन : आर्थिक भूगोल, रस्तोगी प्रकाशन, मेरठ।
22. नेगी, बी.एस. : संसाधन भूगोल,

PAPER-IV: GEOGRAPHY OF ENVIRONMENT

3 hrs. 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- (20 marks) is compulsory and contains 10 questions (20 words), at least three questions from each unit, each question is of 2 marks.
3. Part-B- (20 marks) is compulsory and contains four questions, at least one from each unit. Candidate is required to attempt all four 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

Concept of environment and ecology, nature and scope of the Geography of Environment. Concept of ecology and ecosystem - definition and elements, energy flow in ecosystem. Productivity in ecosystem. Ecocycles, types of ecosystem. Man-environment relationships. Human ecological adaptations, transformation of nature by man. Perception of environment and its quality.

Unit - II

Degradation of Environment, development vis-a-vis ecological crisis.

12 / M.D.S.U. Syllabus/M.A./M.Sc. Geography

Environmental Pollution, water, air, noise, soil, solid waste and radioactive - causes, impact and measures of control with Indian examples. Reduction in bio-diversity and depletion of forests, global warming. Global ecological imbalance - problems of Population, Resources and Ecological crisis. Environment and quality of life.

Unit - III

Environmental Management - Management of forest, soil, wildlife, energy and mineral resources, environmental education, monitoring and mapping. Conservation of natural resources. Ecological planning for sustainable development in India. Environmental policies and programmes (international and national) environmental problems and planning in India; Disaster management - types, components and role of peoples.

Books Recommended :

1. Batel, B. (ed.): Management of Environment, Wiby Eastern Ltd., New Delhi, 1980.
2. Desh Bandhu (ed.): Environmental Management, Indian Environment Society, New Delhi.
3. Singh & Singh (eds): Geography of Environment, Concept, New Delhi.
4. Savinder Singh: Geography of Environment, Allahabad.
5. Murdock, W. (ed): Environment Resources, Pollution and Society Sin over Association Inc. Pub. Sundarlary, Massachusetts.
6. Gupta & Gurjar : Sustainable Development, Rawat Pub., Jaipur.
7. Brij Gopal: Element of Ecology.
8. तेली, बी.एल. एवं नाटाणी : पर्यावरण अध्ययन, कालेज बुक डिपो, जयपुर।
9. सविन्द्रसिंह : पर्यावरण भूगोल, इलाहाबाद।
10. श्रीवास्तव, वी.के. : पर्यावरण भूगोल एवं पारिस्थितिकी विकास, वसुन्धरा प्रकाशन, गोरखपुर।
11. Strahler, A.N. : Geography and Man's Environment, John Willey.
12. Centre for Science & Environment : The State of India Environment, A Citizen's Report 1982, 1985, New Delhi.
13. सक्सेना, एच.एम. : पर्यावरण एवं पारिस्थितिकी भूगोल, राजस्थान हिन्दी ग्रंथ अकादमी, जयपुर।
14. बाकरे, बाकरे एवं वाधवा : पर्यावरण अध्ययन, रस्तोगी प्रकाशन, मेरठ।

GEOGRAPHYPRACTICAL : A

Max. Marks: 100

Min. Pass Marks: 40

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 (4 hours duration) (5 problems out of 6 problems)	50 Marks
2. Record Work & Viva-Voce (20+ 10) (2 hours)	30 Marks
3. Research Project Report & Viva-voce (15+ 5) (2 hours) (Based on Environmental problem)	20 Marks
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 students may not undertake tracing of old exercise.

Course Content:

1. Laboratory and Map Work:
 - i The Art and Science cartography, history of maps, materials, techniques and preparation of maps.
 - ii A brief history of topographical maps of the world with special reference to India and their interpretation. Detailed study of such topo-sheets.
 - iii 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 constructions of the following projections

I. Conical Projections:

1. Equal area with one 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 Sanson Flamsteed (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.

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

GEOGRAPHY PRACTICAL : B

Max. Marks: 100

Min. Pass Marks: 40

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 (4 hours duration)
(5 problems out of 6 problems) | 50 Marks |
| 2. Record Work & Viva-Voce (20+ 10) (2 hours) | 30 Marks |
| 3. Research Project Report & Viva-voce (15+ 5) (2 hours)
(Based on Socio-economic survey camp) | 20 Marks |

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 students may not undertake tracing of old exercise.

Course Content:

1. 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.

2. Quantitative Techniques:

Theoretical basis of nearest neighbour analysis, practical exercise on nearest

neighbour analysis. Network analysis, locational analysis of urban centres
Coefficient of variation.

3. 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 ogilvie's. (All these be computed from the statistical data, preferably based on district or tehsil unit areas)

4. Research Project:

A one week camp to be organised on socio-economic problems of any town/village, within the Rajasthan State and report will be submitted by each group of ten students separately.

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. Lawrence: G.R.P. Cartographic Methods, London, 1971.
7. Dickondon, G.C. : Statistical Mapping of Statistics, London.
8. जे.पी.शर्मा : प्रायोगिक भूगोल, रस्तोगी प्रकाशन, मेरठ।

M.A./M.Sc. FINAL GEOGRAPHY
PAPER-V: ADVANCED GEOGRAPHY OF INDIA

3 hrs. 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- (20 marks) is compulsory and contains 10 questions (20 words), at least three questions from each unit, each question is of 2 marks.
3. Part-B- (20 marks) is compulsory and contains four questions, at least one from each unit. Candidate is required to attempt all four 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

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 on 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) Aravalli (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, अजमेर।
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 Sen Gupta: Economic Regions and Regionalisation in India, 1968.
8. Choudhary, 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 others: 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 India Calcutta University, Calcutta.
15. Sharma, T.R. : Location of industries of India, Hindu, Kitah, Bombay.
16. Gazetteers of India: Publication Division, New Delhi.
17. S.P. Roy Choudhary : Land and Soil, National Book Trust, New Delhi.
18. Sinha: A Treatise on Industrial Minerals.

PAPER-VI: URBAN GEOGRAPHY

3 hrs. 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- (20 marks) is compulsory and contains 10 questions (20 words), at least three questions from each unit, each question is of 2 marks.
3. Part-B- (20 marks) is compulsory and contains four questions, at least one from each unit. Candidate is required to attempt all four 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

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

Unit - II

Functional classification of cities, Urban economic base - The basic and non-basic 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, Principles of Regional Planning, Master Plan of New Delhi and Mumbai.

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, Allahabad.
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 Rap : 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 an Urban Survey, National Geographical Society of India, B.H.U., Varanasi.
10. Sovani, N.V. : Urbanization and Urban 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. Gibbs, J.P.: Urban Research Method, Von Nostrand Co. Inc. Toronto, 1961.
18. जोशी, आर. एल. : नगरीय भूगोल, राजस्थान हिन्दी ग्रन्थ अकादमी, जयपुर।
19. ओमप्रकाश सिंह : नगरीय भूगोल।
20. बंसल : नगरीय भूगोल।

**Paper-VII: Anyone of the Following
PAPER - VII (a) : BIO-GEOGRAPHY**

3 hrs. 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- (20 marks) is compulsory and contains 10 questions (20 words), at least three questions from each unit, each question is of 2 marks.
3. Part-B (20 marks) is compulsory and contains four questions, at least one from each unit. Candidate is required to attempt all four 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

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.

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. Donald: 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.
8. Mathur, H.S. : Bio-Geography.

PAPER-VII(b): AGRICULTURAL GEOGRAPHY

3 hrs. 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- (20 marks) is compulsory and contains 10 questions (20 words), at least three questions from each unit, each question is of 2 marks.
3. Part-B- (20 marks) is compulsory and contains four questions, at least one from each unit. Candidate is required to attempt all four 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

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 commercialisation, 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 activities.

Books Recommended :

1. Bayliss Smith, T.P. : The Ecology of Agricultural Systems. Cambridge University Press, London, 1987.
2. Berry, B.J.L. et.al. : The Geography of Economic Systems. Prentice Hall, New York, 1976.
3. Brown, L.R. : The Changing World Food Prospects - The Nineties and Beyond. World Watch Institute, Washington D.C., 1990.
4. Dyson, T. : Population and Food - Global Trends and Future Prospects. Routledge, London, 1996.
5. Gregor, H.P. : Geography of Agriculture, Prentice Hall, New York, 1970.
6. Grigg, D.B. : The Agricultural Systems of the World. Cambridge University Press, New York, 1974.
7. Hartshorn, T.N. and Alexander, J.W.: Economic Geography, Prentice Hall, New Delhi, 1983.
8. I.C.A.R.: Soil and Water Conservation Research (1956-71).
9. I.C.A.R.: Soil Conservation in India.
10. Manmon, A.M. : Agriculture and Environment Change. John Wiley, London, 1995.
11. Morgan W.B. and Norton, R.J.C. : Agricultural Geography. Mathuen, London, 1971.
12. Morgan, W.B. : Agriculture in the Third World - A Spatial Analysis, Westview Press, Boulder, 1978.
13. Sauer, C.O. : Agricultural Origins and Dispersals. M.L.T. Press, Mass, U.S.A., 1969.

14. Singh, J. and Dhillon, S.S. : Agricultural Geography, Tata McGraw Hill Pub., New Delhi, 1988.
15. Tarrant, J.R. : Agricultural Geography. Wiley, New York, 1974.
16. Sachchindaniand : Social Dimensions of Agricultural Development, National Publishing House, Delhi.
17. Noor Mohammed: New Dimension in Agriculture, Concept, New Delhi, , 1991.
18. Stamps, L.D., Kostro Wisckie : Land Britain, Issues and Misuses, World Types of Agriculture, Polish Academy, Warsaw.
19. Shafi, M. : Land Use in Eastern U.P., Aligarh University Press.
20. Mishra, V.C., Ayyar, N.P., Kumar, P. : Applied Geography, Ali Memorial Number University Press, Agra.
21. Singh Jasbeer : Ahrciatral, Atlas of India, Vikas Publishers.
22. Singh, Jasbeer : Agricultural Geography of Haryana.
23. Noor Mohammed: Agriculture Land Use in India, Inter-India Publi., Delhi.
24. Ali Mohammed: Situation of Agriculture, Food and Nutrition in Rural India, Concept Publishing Co., Delhi.
25. Ali Mohammed: Dynamics of Agriculture Development in India, Concept Publication Co., Delhi.
26. Symon Leslie: Agricultural Geography, G. Bell and Sons. Ltd., London, 1967.
27. Singh, R.L. (ed): Applied Geography, B.H.U. Press, Varanasi.
28. Kostro Wisckie : Agricultural Typology, Polish Academy, Warsaw.
29. प्रमिला कुमार : कृषी भूगोल, मध्य प्रदेश हिन्दी अकादमी।
30. सिंह, ब्रज भूषण : कृषी भूगोल, गोरखपुर।

PAPER- VII (c) : QUANTITATIVE TECHNIQUES IN GEOGRAPHY

3 hrs. 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- (20 marks) is compulsory and contains 10 questions (20 words), at least three questions from each unit, each question is of 2 marks.
3. Part-B- (20 marks) is compulsory and contains four questions, at least one from each unit. Candidate is required to attempt all four 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

Various types of average, Measures of dispersion and their calculation. Probability: Theory of probabilities-law of addition and multiplication probabilities of distribution: normal, binomial, Poisson sampling : basic concepts, sample units and design, sampling frame and procedures, standard error and sample size, testing the adequacy of samples.

Hypothesis Testing : Needs and types of hypotheses, goodness of fit and significance and confidence levels, Parametric and non-parametric procedures : contingency tables, Chi-square test, binomial test, t-test, Mann Whitney U test, Analysis of Variance (ANOVA).

Unit - II

Bivariate Analysis : Forms of relation and measuring the strength of association and relation, Construction and meanings of scatter diagram, Simple linear and regression analyses, Spearman's Rank and Product Moment Correlation Coefficients, the ordinary least square method of fitting a regression line, construction of regression line : interpolation, prediction, explanation and residual, Statistical tests of significance of the estimates, residuals and their mapping.

Unit - III

Multivariate Analysis: Basics of multiple regression, Partial correlation coefficient regression analysis and ANOVA, Testing the overall significance of a regression auto correlation, multicolliniarity, basic principles and elements of Factor Analysis and principal component analysis.

Surfaces and Models : Gravity potential; model, spatial interpolation and trend surface analysis, simulation models : random walk and diffusion models - Markov chain model similarity indices and region building construction of Thiessen polygons.

Books Recommended :

1. Gregory's : Statistical Methods and the Geographer, Longmans.
2. King T.J. : Statistical Analysis in Geography, Prentice Hall.
3. Hagget P. : Locational Analysis in Human Geographical Studies, Sanjay Enterprises, New Delhi.
4. Mahmood, Aslam : Statistical Methods in Geographical Studies, Sanjay Enterprises, New Delhi.
5. John Silk : Statistical Concepts in Geography, George Allen and Unwin, London, 10.
6. Growzon & Cowden: Applied General Statistics, Prentice Hall.
7. Johnston, R.L. : Multivariate Statistical Analysis in Geography, George Allen Unwin, London.

Paper- VIII : Any one of the Following

PAPER - VIII (a) : POLITICAL GEOGRAPHY

3 hrs. 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- (20 marks) is compulsory and contains 10 questions (20 words), at least three questions from each unit, each question is of 2 marks.
3. Part-B- (20 marks) is compulsory and contains four questions, at least one from each unit. Candidate is required to attempt all four 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; approaches 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 Indian 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 behaviour 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. Bownman, L. : The New World Problems in Political Geography, World Co.

Youngers, On Hudson.

4. East, w.G. and Moodie A.E. : The Changing World, George G. Harrap and Co., London.
5. East, W.G. and Spate, O.H.K. : The Changing Map of Asia, Methuen and Co., London.
6. Frigricive, J. : Geography and World Powel, University of London Press, London.
7. Fawcer, C.B. : Frontiers, Study in Political Geography, Oxford University Press, Oxford.
8. Fizgiddon, R.H. : Global Politics, University of California Press, Parkaley.
9. Horradin, J.F. : An Outline of Political Geography, Atred A. Knob, New York.
10. 11. Moodie, A.E. : Geography behind Politics, Hutchinson's University Library, London.
12. Pearch, C.E., et.al. : World Political Geography, Thomas, Y. Crowell Co., New York.
13. Valkenburg, S.Y. & Suz. C.L. : Elements of Political Geography, Second Edition, Eastern Economy Edition. Prentice Hall & Co. Ltd., New York.
14. Stranz, R.H. : Geopolitics - The Struggle fo. Space and Power, G.P. Pitman's & Sons, New York.
15. Stykman, N.J. : The Geography of Place, Harcour Brace, New York.
16. Wegert. H.W., Stefansov, V & Harrison, R.E. : New Compass of the world Macmillan and Co., New York.
17. Whittlesey, D. : The Earth and State, Henry Holt and Co., New York.
18. W.A. Douglass Jackson : Politics and Geography Relationship, Prentice Hall, New York.
19. S.B. Cohen : Geography and Politics and Geography Relationship, Prentice Hall, New York.
20. Crone : _Background to Political Geography.
21. Blij, D. Jeo : Systematic Political Geography, John Willey & Sons, New York.
22. Berginan. Edward E. : Modern Political Geography, W.M.C. Brown Company Publishers.
23. Dikshit, R.D. : Political Geography - A Contemporary Perspective, Tata McGraw Hill Publishing Co. Ltd., New Delhi.
24. Sukhwal, B.L. : India - A Political Geography, Allied Publishers, New Delhi.
25. सक्सेना, हरिमोहन : राजनैतिक भूगोल, रस्तोगी एण्ड कम्पनी, मेरठ।

PAPER - VIII (b) : INDUSTRIAL GEOGRAPHY

3 hrs. 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- (20 marks) is compulsory and contains 10 questions (20 words), at least three questions from each unit, each question is of 2 marks.
3. Part-B- (20 marks) is compulsory and contains four questions, at least one from each unit. Candidate is required to attempt all four 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

Nature, scope and recent developments, elements and factors of localization of manufacturing industries : centralization and decentralization of industrial enterprises; horizontal, vertical and diagonal linkages of modern industries.

Theories and models of industrial location : Weber, Losch, Isard and Hoover. Modern refinements to least-cost-theory; Critical review and application of industrial location theories.

Unit - II

Distribution and spatial pattern of manufacturing industries - Iron and Steel, Aluminium, Copper, energy goods and automobiles; textiles, chemicals, petrochemicals, Ship-building, Pulp and Paper, hardware and software industries. Methods of delineating manufacturing regions, major manufacturing regions of the world.

Methods of measuring the spatial distribution of manufacturing industries: location quotient, co-efficient of geographic association, index of concentration; case studies on application of these methods.

Unit - III

Environmental degradation caused by manufacturing industries Industrial hazards and occupational health. Impact of manufacturing industries on economic development; Role of globalisation on manufacturing sector; shifting of industries and its impact on the urban fringe; changing industrial policy - need for integrated industrial development.

Books Recommended :

1. Llyod and Dicken: Location in Space - A Theoretical Approach to Economic Geography.
2. M.C. Cart & Linberg Hodder & Lee : Economic Geography.
3. Smit, D.E. Cox K.P. man : Industrial Location. A Economic Geographic Analysis, Location and Behaviour - An Introduction to Human Geography.
4. Riley, RC. : Industrial Geography, 1973. Chalto and Windus London.

5. Alexander, J.W. : Economic Geography, Prentice Hall, New Delhi.
6. Besoh: A Geography of World Economy.
7. Estall, RC. & Buchanan, RO. : Industrial Activity & Economic Geography, Hutchinson Co., London.
8. Hoover, E.M. : The Location of Economic Activity, MCGraw Hill Books Co., New York.
9. Choudhary, M.R. : Industrial Geography of India. |

PAPER - VIII (c) : REMOTE SENSING AND GIS

3 hrs. 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- (20 marks) is compulsory and contains 10 questions (20 words), at least three questions from each unit, each question is of 2 marks.
3. Part-B- (20 marks) is compulsory and contains four questions, at least one from each unit. Candidate is required to attempt all four 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

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 base maps; Digital processing : rectification and resolution, Image enhancement-contrast manipulation, classification supervised and

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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.

Suggested Readings :

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 York, 1959.
7. Pratt, W.K. : Digital Image Processing. Wiley, 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, Vigyan Prakashan, 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 : A

Surveying and Laboratory Work (Total 10 hrs. per batch of 15 candidates spread over two days).

Distribution of marks will be as follows:

- | | |
|---|----------|
| 1. Laboratory Work (4 hours duration) | |
| (5 problems out of 6 problems) | 50 Marks |
| 2. Record Work & Viva-voce (20+ 10) (2 hrs.) | 30 Marks |
| 3. Computer project & Viva-Voce (15+5) (1 hrs.) | 20 Marks |

Note: Record work of minimum 20 of 1/2 size 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.

Course Content:

1. **Methods and techniques of representation of relief.**
 - Methods and techniques of depicting relief; field sketching, hypsographic curves, altimetric frequency graphs.
 - Types of Profile - Serial, super-imposed, projected and composite.
 - Contours and intervisibility - cross section, similar triangles and gradient methods.
 - Gradients and calculation of slopes and determination of slopes - Finsterwalder's, Wentworth's, Smith's and Robinson's methods.
 - Block diagrams - kinds of block diagrams and conversion of contour maps into block diagrams.

2. **Interpretation of Air Photo & Remote Sensing:**

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 depiction and identification of cultural and physical features on aerial photography. Photo interpretation of land use and settlement in the field. Remote sensing : its use as a modern technology and its basic concepts.

3. **Computer Application in Geography:**

- Computer - History, generations types, characteristics and number system; Memory, input-output devices and printer; Internet and e-mail etc.
- Word processor- Editing, formatting, mailmerge, printing.
- Spreadsheet - Worksheet and workbook, editing and formating, creating formula,

creating graphs and charts; Mathematical, statistical and logical functions.

Reference Books :

1. Barrett, E.C. and L.F. Curtis : Fundamentals of Remote Sensing and Air Photo interpretation, McMillan, New York, 1992.
2. Campbell, J. : Introduction of Remote Sensing, Guilford, New York, 1989.
3. Curran, P. J. : Principles of Remote Sensing, Longman, London, 1985.
4. Mishra, R.P. : Fundamental of Cartography, Macmillan, New Delhi.
5. Singh R.L. : Elements of Practical Geography, Kalyani Publishers, New Delhi.
6. जे.पी.शर्मा : प्रायोगिक भूगोल, रस्तोगी प्रकाशन, मेरठ।

GEOGRAPHY PRACTICAL : B

Surveying and Laboratory Work (Total 10 hrs. per batch of 15 candidates spread over two days).

Distribution of marks will be as follows:

1. Laboratory Work (4 hours duration) (5 problems out of 6 problems)	40 Marks
2. Record Work & Viva-voce (20+ 10) (2 hrs.)	30 Marks
3. Field Surveying & Viva-Voce (10+5) (3 hrs.)	15 Marks
4. Surveyed Camp & Viva-voce (10+5) (1 hr.)	15 Marks

Note: Record work of minimum 20 sheets of 1/2 size 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.

Course Content:

Field Surveying:

- The Art of Surveying, History of Surveying, scope, utility and problems Classification of Surveying.
- Plane table survey - Radiation, intersection, traversing, resection (two and three point problems), Mechanical method, Liano's, Bassel's, Trial and error.
- Prismatic Compass Survey - importance, Methods : Radiation, Intersection, Traverse (close and open traverse), correction of bearings and removal of closing error - Bowditch, graphical and mathematical method, Calculation of WCB and calculation of included angles (CIA).
- Theodolite: Its parts and their functions, use of theodolite, traverse and traverse computation, independent coordinates.
- Clinometer: Use and application of clinometer in small area survey - contouring by clinometer.
- Levelling: Terms, types and principles of levelling. Classification of levelling, profiles and other levelling. Use of dumpy level, practical contouring, cross.

sectioning, use and application of Abeny level.

Survey Camp:

- A topographical survey of settlement will be done by organising a camp at least for a week of any town/village, within the Rajasthan State and map of the area will be prepared. It is compulsory for all students to stay in the camp. The map should be prepared by students Art of Surveying, History of Surveying, scope, utility and problems Classification of Surveying.

Reference Books :

1. Kanetkar, T.P. and Kulkarni, S.V. Surveying and Levelling Vol., A.V. Gria Prakash, Puna.
2. Deshpande, T.S. : A Text Book of Surveying and Levelling, United Book Corporation, Puna.
3. James Glending : Principal and use of Surveying, Blackie and Sons Ltd.
4. Punamia, B.C. : Surveying and Field Work Vol. 1, Standard Books Depot, New Delhi.
5. Breed, C.B. and Honmer, G.L. : The Principle of Surveying, YOU and n, New York.
6. Davis, R.E. and Foot, E.S. : Surveying Theory and Practice, John Willey and Sons Inc. New York.
7. Tracy, T.R. : Surveying Theory and Practice, McGraw Hill Book Co., New York.
8. Thrilfall, H.S.A. : Text Book of Surveying and Levelling, Chart Grafflin, London.
9. Williamson: Surveying and Field Work, (Constable).
10. Roorkee Engineering College: Manual of Surveying.
11. Gautam, N.C. : Urban Land Use Studies Through Ailph Interpretation Techniques, Pink Publishing House Mathura.

