DIRECTORATE OF DISTANCE EDUCATION
KURUKSHETRA UNIVERSITY
KURUKSHETRA-136119

Scheme of Examination for Annual System of

M.Sc. Geography (Previous)

w.e.f. Session 2016-17

FIRST YEAR

Paper No.	Title	Max. Marks	Internal Marks	Total Marks	Time
I	Geomorphology	80	20	100	3 Hours
II	Climatology	80	20	100	3 Hours
III	Economic Geography	80	20	100	3 Hours
IV	Geography of India	80	20	100	3 Hours
V-a	Quantitative Methods and Cartographic Representation of Climatic and Socio-Economic Data (Theory)	40	10	50	3 Hours
V-b	Quantitative Methods and Cartographic Representation of Climatic and Socio-Economic Data (Practical)	50		50	3 Hours

SYLLABUS & COURSES OF READING

Paper-I : **GEOMORPHOLOGY**

Max. Marks: 80
Time: 3 Hrs.

Note:- **There will be nine questions in all. Question No. 1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each section. The candidate shall attempt FOUR long questions, one from each section. Question 1 carries 20 marks while remaining four questions carry 15 marks each.**

SECTION-A

I. Nature and scope of geomorphology; Fundamental concepts- Uniformitarianism; Geological structure and landforms, multicycle and polygenetic evolution of landscapes; Thresholds in geomorphology; Frequency concept of geomorphic processes; Morphogenetic regions; Environmental change and geochronological methods. Documentary evidence, Artifacts, Dendrochronology, Pollen, Carbon-14 and Thermoluminescence.

2. Exogenous and endogenous processes: Concept of gradation; Description of exogenous and endogenous processes and their role in the gradation earth's relief.

SECTION-B

3. Weathering: Causes: Types of weathering processes -Mechanical, chemical. biological, biochemical, bacterial and non-bacterial processes.

4. Mass Movements: Causes; Classification, and types of slow through to rapid movements.

SECTION-C

5. Plate tectonics: Basic considerations, tectonic cycle, plate interactions, plate boundaries and seismicity.

6. Oceanography: Temperature and salinity of the sea water; Marine sediment, and significance; Major relief aspects of ocean; Coral reefs, Sea-level change; Food and mineral resources of the sea.

SECTION-D

7. Fluvial, glacial, aeolian, marine and karst processes and their landforms.

8. Applied Geomorphology: Types of human impacts, Applications of geomorphology-Land resource classification schemes; Environmental impacts; Geomorphic Hazards.

Books Recommended:

1. Brunsden D. and Prior, D.B., 1984. Slope Instability. Chichester, John Wiley & Sons.
2. Carson, M.A. and Kirkby, M.I., 1972. Hillslope Form and Processes. Cambridge, Cambridge University Press. I

3. Cooke, R.U. and Doomkamp, 1.C., 1974. Geomorphology in Environmental Management. Oxford, Clarenden Press
4. Davis, R.A. Jr., 1986. Oceanography. Lowa, Wm.C. Brown.
5. Embleton, C. and Thorrnne, J.(eds), 1979. Process in Geomorphology. London, Edward Arnold.
6. Fairbridge, R. W. (Ed.), 1968. Encyclopedia of Geomorphology, New York, John Wiley & Sons.
7. Goudie, A.S., 1993. The Nature of the Environment. London, Blackwell (3rd edn.).
8. Keller, E.A., 1979. Environmental Geology. Columbus, Charles E. Merrill Pub.Co.
9. Ollier, C.D. 1979. Weathering, London, Longman.
10. Ritter, D.F., Kochel, R C., and Miller, J.R., 1995. Process Geomorphology. Dubuque, Wm C.Brown Publishers (3rd Edn.).
11. Skinner, B.J. and Porter, S.C., 1995. The Dynamic Earth. New York, John Wiley & Sons.
12. Thornburu W.D., 1969. Principles of Geomorphology, New York, John Wiley & Sons.

Paper-II : CLIMATOLOGY

Max. Marks: 100
Time: 3 Hrs.

Note:- There will be nine questions in all. Question No. 1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each section. The candidate shall attempt FOUR long questions, one from each section. Question 1 carries 20 marks while remaining four questions carry 15 marks each.

SECTION-A

1. Climate and the Atmosphere:
   (i) Meaning, Nature and Scope of Climatology.
   (ii) Introduction to origin and composition of the atmosphere.
   (iii) Structure of the atmosphere.
2. Solar Radiation:
   (i) Insolation and factors in its Spatial Variations. ..
   (ii) Terrestrial Radiation and heat budget.
3. Atmospheric Temperature:
   (i) Horizontal distribution of temperature and seasonal variations.
   (ii) Vertical distribution of temperature.
   (iii) Inversion of temperature.

SECTION-B

4. Characteristics of Atmospheric Pressure:
   (i) Atmospheric pressure.
   (ii) Vertical variations in atmospheric pressure.
   (iii) Horizontal variations in atmospheric pressure.

5. Atmospheric Motions:
   (i) Factors in atmospheric motion.
   (ii) General atmospheric circulation
   (iii) Walker circulation -ENSO, La Nina.
   (iv) Seasonal winds and theories of Monsoon's origin.
   (v) Local winds
   (vi) Jet streams.

SECTION-C

6. Atmospheric Moisture and Precipitation:
   (i) Water vapour and humidity.
   (ii) Physical changes in state of water in atmosphere.
   (iii) Forms of condensation.
   (iv) Dynamics and types of precipitation.
   (v) World Distribution pattern of precipitation.
   (vi) Hydrological Cycle.
7. Weather Disturbances:
   (i) Stability and instability of the atmosphere.
   (ii) Air masses and their modification.
   (iii) Fronts.
   (iv) Extra-tropical cyclones.
   (v) Tropical cyclones.

SECTION-D

8. Classification of World Climates:
   (i) Koeppen's classifications.
   (ii) Thornthwaite's Classification.
   (iii) Trewartha's modification of Koeppen's climatic classification.
9. Climatic Change:
   (i) Climatic Cycle.
   (ii) Evidences of Climatic Change.
   (iii) Explanations of Climatic Change.
   (iv) Global Warning.

Suggested Readings:

1. Trewartha, G. T., An Introduction to Climate, 5th Edition, McGraw Hill Book Company, New York, 1980.
2. Critchfield, H.J., General Climatology, 4th Edition, Prentice Hall of India, New Delhi, 1987.
3. Donn, W.L., Materiology, 3rd Edition, McGraw Hill Book Company, New York, 1953.
4. Das, P .K. The Monsoons, National Book Trust, India.
5. George, R. Rumney, Climatology and the World's Climate, The Macmillan Company, New York, 1968.
6. Lal, D.S., Climatology, 1996. Allahabad, Chaitanya Publishing House.

Paper-III : **ECONOMIC GEOGRAPHY**

Max. Marks: 80
Time: 3 Hrs.

Note:- There will be nine questions in all. Question No. 1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each section. The candidate shall attempt FOUR long questions, one from each section. Question 1 carries 20 marks while remaining four questions carry 15 marks each.

SECTION-A

I. Economic Geography: Nature, scope, relationships of Economic Geography with Economics and other branches of social sciences.

2. Classification of Economics, sectors of economy, primary, secondary and tertiary. Location of economic activities.

SECTION-B

3. World Agricultural types -Intensive subsistence agriculture, Mediterranean Agriculture, Plantation Agriculture, Impact of green revolution on Indian economy.

4. Classification of Industries Manufacturing and Basis of location and development of Iron and Steel Industry, Cotton textile industry, Chemical industry, Aluminum industry, oil refining industry.

SECTION-C

5. Renewable resources and non-renewable resources: Coal and petroleum, their production and distribution.

6. Basis of International trade, Major Ocean trade routes, Suez Canal and Panama Canal.

SECTION-D

7. (i) Network structures and economic activities.
   (ii) Typology of rural markets, urban markets in the economy of urban -centres.

8. Locational and Interaction Theories:
   (i) Yon Thunen's model on agricultural location and its modifications.
   (ii) Alfred Weber's model on industrial location and its modifications by Isard and Losch.
   (iii) Walter Christaller's model on location of Tertiary Activities.
   (iv) Edward Ullman's Spatial Interaction Model.

Suggested Readings:

1. Thoman, R.S., Conkling, E.C., and Yeates, M.H., The Geography of Economic Activity, New York, 1962, McGraw Hill Book Company.
2. Hartshorn, T.A., and Alexander, J. W., Economic Geography, Third Edition, New Delhi (1988), Prentice Hall of India.

3. Saushkin, Yu.G., Economic Geography -Theory and Methods, Moscow (1980), Progress Publishers.
4. Jones, C.F., and Darkenworld, G.G., Economic Geography (1965), New York, The Macmillan and Co.
5. James. D., Wheeler and Peter O., Muller, Economic Geography (1988), John , Wiley and Sons, New York.

Paper-IV : GEOGRAPHY OF INDIA

Max. Marks: 80
Time: 3 Hrs.

Note:- There will be nine questions in all. Question No. 1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each section. The candidate shall attempt FOUR long questions, one from each section. Question 1 carries 20 marks while remaining four questions carry 15 marks each.

SECTION-A

1. Physical Setting: Relief, Drainage and Climate.
2. Soils -Soil types of India, their distribution and characteristics.
3. Natural Vegetation in India -its types and distribution.

SECTION-B

4. Human Resources: Distribution, density, growth, urbanization and settlement patterns.
5. Agricultural Resources:
   (i) Irrigation as the pre-requisite for agriculture.
   (ii) Problems pertaining to agricultural development and strategy for its advancement.
   (iii) Agro-climatic regions.

SECTION-C

6. Power and Mineral Resources:
   (i) Coal, Mineral Oil and Hydro power. (ii) Iron, Mica, Manganese and Bauxite.
7. Manufacturing Industries:
   (i) Iron & Steel, Cotton Textile and Sugar.
   (ii) Industrial Regions.

SECTION-D

8. Regional Classification of India.
9. Study of following regions:
   (i) Upper Ganga Plain

(ii) Chotta Nagpur Plateau
(iii) Kashmir Himalaya
(iv) Haryana Punjab Plain

10. Regional disparities in social and economic development in India.

Suggested Readings:

1. Ashok Mitra: India's Population, Vol. I and Vol. II, Abhinav Pub., New Delhi, 1978.
2. Chibber, H.L. : India, Physical Basis of Geography, Nand Kishore, Banaras, 1961.
3. Singh, Jasbir : An Agricultural Atlas of India: A Geographical Analysis, Kurukshetra, Vishal Publications, 1974.
4. Sharma, T.C. and Coutinho, O. : Economic and Commercial Geography of India, 1981.
5. Singh, R.L.: India: A Regional Geography, N.G.S.I., Varanasi, 1971.
6. Deshpande, C.D. : India -A Regional Interpretation, Northern Book Centre, New Delhi, 1992.
7. Routray, J.K. : Geography of regional disparity, Asian Institute of Techno logy, Bankok, 1993.

Paper- V (a) Quantitative Methods and Cartographic Representation of Climatic and Socio-Economic Data (Theory)

Max. Marks: 40
Time: 3 Hrs

INSTRUCTIONS FOR THE PAPER-SETTER:

Note:- There will be seven questions in all. Question No.1 is compulsory and consists of 5 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 6 long questions, three from each section. The candidate shall attempt THREE long questions selecting at least one from each section. All questions carry equal marks.

SECTION-A

1. Measures of Central Tendency. Mean, Median and Mode. Merits and demerits. Relationships between Central Tendencies.
2. Measures of Dispersion: Dispersion: Range, quartile deviation, mean deviation, standard deviation and Lorenz curve -their merits, limitations and specific uses. Variability Indices: Relative variability, Coefficient of variability, their uses in geographic Data analysis.
3. Theory of Probability: Definition, Theorems: addition, multiplication, Probability Distributions: Normal, Binomial, Poisson.
4. Theory of Sampling: Hypothesis formulation sampling units and designs, sampling frame and procedure standard error and sample size, testing of significance, chi quare ANDVA.
5. Bivariate Analysis: Scatter diagram, Spearman and Karl Pearson Correlation coefficient students' t test, Simple regression least square method, residuals and their mapping.
6. Multivariate Analysis: Partial and multiple correlation, Basics of multiple regression and principal component analysis.

SECTION-B

7. Representation of Climatic Data: Isopleths, line graphs and columnar diagrams in the representation of climatic data; (ii) Climatic diagrams: Rainfall deviation and dispersion diagrams hythergraph, climographs, windrose diagrams. Ergograph.
8. Study of the Indian daily Weather Report and Maps'
   (i) General introduction to weather map.
   (ii) The scheme of meteorological symbols used in Indian Weather Chart.
   (iii) Interpretation of Weather Maps.
9. Nature and scope of Cartography, basic characteristics of maps and classes of Maps.
   (a) Mapping of Population Data: Number, distribution and density growth, age and sex composition, literacy, occupational structures and urbanization.
   (b) Mapping of Agricultural Data: Land Utilization, Cropping Pattern and Irrigated areas.
   (c) Mapping of Industrial Data: Location, production and employment.
   (d) Mapping of Transport Data: Accessibility maps and traffic flow diagrams.

Suggested Readings:

1. Gupta, C.B. 1974, An Introduction to Statistical Methods, Delhi, Vikas Publishing House.
2. Gregory, S., 1964, Statistical Methods and the Geographers, London, Longman, Green *Co.* Ltd.
3. Steers, J.A., 1957, Map Projections, London, University of London Press.
4. Warpole, Ronald E., 19.74, Introduction to Statistics, New York, Macmillan Publishing *Co.*
5. Misra, R.P., 1969, Fundamentals of Cartography, Prasaranga.
6. Monkhouse, F.J. and Wilkinson, H.R., 1967, Maps and Diagrams, London, Methuen and *Co.*
7. Raise, E., 1962, Principles of Cartography, New York, McGraw Hill Book Company.
8. Robinson, A.H., 1966, Elements of Cartography, New York, John Wiley and Sons.
9. Singh, R.L., 1979, Elements of Practical Geography, New Delhi, Kalyani Publishers.

Paper-V-b
Quantitative Methods and Cartographic Representation of Climatic and Socio-Economic Data (Practical)

Max. Marks: 50
Time: 3 Hrs.

Note: There will be four questions in all. The candidates will be required to attempt three questions.

The distribution-marks will be as under:

Laboratory Work	:	(10x3)=30 Marks
Practical Record Book	:	10 Marks
Viva-Voce	:	10 Marks