

**Government PG College, Ambala Cantt**

**Course File(Session 2023-24)**

**Name of Professor: Dolon Kaler**

**Class: BA-I/2<sup>nd</sup> Semester**

**Subject code and Name: B23-GEO-201/ Human Geography/CC**

**SYLLABUS**

**Maximum Marks: 100**

**End term Exam marks: 70**

**Minimum Pass Marks:**

**Internal: 30**

**Time: 3 hours**

**Note:** Question 1 is compulsory consisting of five sub parts spread over entire syllabus (two marks for each sub parts), to be answered in 15-20 words. There will be eight long questions, two from each unit. The candidate has to answer four long questions, at least one question from each unit. All questions carry equal marks.

**UNIT – I**

1. Definition, nature and scope of human geography.
2. Development of human geography approaches to study human geography, branches and relation with other social Sciences.

**UNIT –II**

3. Human race: Meaning, classification of races and their global diffusion and distribution.
4. Religion: Meaning, nature and classification. Evolution and global distribution of major religions in the world.

**UNIT – III**

5. Organization of space: central place theory, agricultural location model and industrial location model.
6. Distribution, density and growth of population: Determinants and world pattern.

**UNIT – IV**

7. World pattern of development: economy and polity.
8. World pattern of migration: streams and determinants.

**Text book:** Human Geography, Dr. khullar and Dr. Asok Dewakar.

**REFERENCE BOOKS:** 1. Agarwal, A et al (1999) The Citizen's Fifth Citizen's Report, Centre for Science & Environment, New Delhi.

2. Alexander, John. W. (1988) Economic Geography, Prentice Hall of India Ltd., New Delhi.

3. Bergwan, Edward E. (1985) Human Geography: Culture Connections and Landscape, Prentice-Hall, New Jersey.

End Term

Examination:50

4. Carr, M. Patterns (1987) Process and Change in Human Geography, McMillan Education, London.

20 Marks

5. Carter, H. (1972) The study of Urban Geography, Edward Arno Id, London.

6. Chandna, R.C. (2016) A Geography of Population: Concepts, Determinants and Patterns, Kalyani Publishers, New Delhi.

7. DeBlij, H. J. (1996) Human Geography, Culture, Society and Space, John Wiley, New York.

8. Fellnan, J.L. (1997) Human Geography-Landscapes of Human Activities, Brown and Benchman Pub., USA.

10. Hussain, M. (2018) Human Geography, Rawat, Publication, Jaipur.

9. Hassan, I. ( ) Population Geography: A Systematic Exposition, Routledge, London.

11. McBride, P.J. (1996): Human Geography; Systems Patterns and Change, Nelson, UK and Canada.

13. Qazi, S.A. (2010) Population Geography, APH publishers.

12. Michael, C. (1996) New Patterns: Process and Change in Human Geography, Nelson.

15. Sharrna, Y.K. (2017). Human Geography, Narain publishers.

14. Ramachandra, R. (1992) Urbanization and Urban System in India, Oxford

## **COURSE OBJECTIVES**

The course objectives outlined are as follows:

- Define human geography and understand scope and nature of human geography, relation of other branches.
- Understand human races and explain the diffusion and distribution of races.
- Define religion, nature and classification and analysis of global distribution.
- Analysis the theory of central place theory, agricultural location model and industrial location model.
- Assess the Distribution, density and growth of population and examine Determinants and world pattern of population.
- Analysis the World pattern of development and comparison between economy and polity.
- Assess and impacts of migration in world wide.

## COURSE OUTCOMES

**GEO-203.1:** Provides knowledge about the fundamentals of human geography, man-environment relationship and human races.

**GEO-203.2:** Enrichment of knowledge about distribution of races & tribes in the world and distribution, utilization & conservation of resources.

**GEO-203.3:** Provides awareness about the basic concepts of population and population theories.

**GEO-203.4:** Familiarization with different types of human settlements and impact of population on resources. The successful completion of the course, students will be able to:

### Lesson Plan

Week No	Scheduled Dates	Topics to be covered
1	1-6 January	Exam. Of B.A 1 <sup>ST</sup> Sem.
2	8-13 January	Exam. Of B.A 1 <sup>ST</sup> Sem.
3	15-20 January	Definition, nature of human geography
4	22-27 January	Scope of human geography.
5	29-3 February	Development of human geography approaches to study human geography,.
6	5-10 February	branches and relation with other social Sciences
7	12-17 February	Human race: Meaning
8	19-24 February	classification of races and their global diffusion and distribution
9	26-2 March	Religion: Meaning, nature and classification
10	4-9 March	Evolution and global distribution of major religions in the world.
11	11-16 March	Organization of space: central place theory,
12	18-23 March	Agricultural location model and industrial location model.
13	1-6 April	Distribution, density and growth of population: Determinants and world pattern.

<b>14</b>	<b>8-13 April</b>	World pattern of development: economy and polity.
<b>15</b>	<b>15-20 April</b>	World pattern migration: streams and determinants.
<b>16</b>	<b>22-27 April</b>	Previous Year Question Papers Discussion and revision

**Government PG College, Ambala Cantt**

**Course File(Session 2023-24)**

**Name of Professor: Dolon Kaler**

**Class: BA-II/4<sup>th</sup> Semester**

**Subject code and Name: B23-GEO-204/ Map Projections (Practical)**

## **SYLLABUS**

**Maximum Marks: 30**

**Times: 3hrs**

**Minimum Pass Marks:**

**Time: 3 hours**

1. Acquaintance with nature and significance of projections system.
2. Augmentation of skills to make cylindrical and conical projections.
3. Capability to construct zenithal and world map projections.
4. Enrichment of surveying skills using plane table.

## **COURSE OBJECTIVES**

The course objectives outlined are as follows:

- Understanding the map projection and analysis the importance of map projection.
- Developing skills to design, implement the different map projection in different parts of the world.
- Enrichment of surveying skills using plane table and preparing students for further studies.

## **Course outcomes (COs):**

**GEO-204.1:** Acquaintance with nature and significance of projections system.

**GEO-204.2:** Augmentation of skills to make cylindrical and conical projections.

**GEO-204.3:** Capability to construct zenithal and world map projections.

**GEO-204.4:** Enrichment of surveying skills using plane table.

**Test books:** Human Geography, Dr. Asok Diwakar and Dr. D.R Khullar

## Lesson Plan

<b>Week No</b>	<b>Scheduled Dates</b>	<b>Topics to be covered</b>
<b>1</b>	<b>1-6 January</b>	Introduction to Map Projection: Meaning, Classification and importance; Characteristics of latitudes and longitudes lines Practice and revision
<b>2</b>	<b>8-13 January</b>	Cylindrical projections: Characteristics, applications and drawing Simple cylindrical projection Cylindrical equal area projection
<b>3</b>	<b>15-20 January</b>	True shape or orthomorphic or Mercator's Projection Conical Projections: Characteristics, applications and drawing
<b>4</b>	<b>22-27 January</b>	Simple conical projections with one standard parallel Simple conical projection with two standard parallel
<b>5</b>	<b>29-3 February</b>	Bonne's Projection Polyconic projection
<b>6</b>	<b>5-10 February</b>	Practice and revision File checking
<b>7</b>	<b>12-17 February</b>	Conical Projections: Characteristics, applications and drawing -International Map Projection
<b>8</b>	<b>19-24 February</b>	Zenithal Projections: Characteristics, applications and drawing
<b>9</b>	<b>26-2 March</b>	Polar Zenithal Equidistant Projection. Polar Zenithal Equal Area Projection
<b>10</b>	<b>4-9 March</b>	Polar Zenithal Gnomonic Projection Polar Zenithal Stereographic Projection
<b>11</b>	<b>11-16 March</b>	Polar Zenithal Orthographic Projection Practice and revision
<b>12</b>	<b>18-23 March</b>	Practice and revision File checking
<b>13</b>	<b>1-6 April</b>	Characteristics, applications and drawings Sinosoidal Projection
<b>14</b>	<b>8-13 April</b>	Practice and revision File checking
<b>15</b>	<b>15-20 April</b>	Mollweide Projection Practice and revision
<b>16</b>	<b>22-27 April</b>	Plane Table Survey- Meaning, Methods and construction Revision, discussion & practice

**Government PG College, Ambala Cantt**

**Course File(Session 2023-24)**

**Name of Professor: Dolon Kaler**

**Class: : M.Sc. Geography/2<sup>nd</sup> Semester**

**Subject code and Name: GEOG-203/ Regional development and planning (with special reference of India)**

## **SYLLABUS**

**Maximum Marks: 100**

**End term Exam marks: 80**

**Minimum Pass Marks: 32**

**Internal: 20**

**Time: 3 hours**

**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 unit. The candidate shall attempt FOUR long questions, one from each unit. Question 1 carries 20 marks while remaining four questions carry 15 marks each.**

### **UNIT-I**

1. Regional Development: Concept of Space and Region, Typology of Regions, Planning Regions; planning regions of India and their characteristics.

### **UNIT-II**

2. Theories of Regional Development: Theory of Polarized Development, F. Perroux Model, Hirschman Theory, Myrdal Theory; Theory of Development from below by J. Friedman, Ecological Theory of Sustainable Development

### **UNIT-III**

3. Development and Regional Disparities in India since Independence

(i) Disparities in Agricultural Development

(ii) Disparities in Industrial Development.

(iii) Disparities in Human Resource Development in terms of education and health

### **UNIT-IV**

4. Approaches to regional planning in India.

5. Planning in India through Five Year Plans; Special Area Development Plans.

6. Metropolitan Planning; Regional Problems and Prospects in India.

### **Course Objectives:**

The course objectives outlined are as follows:

- Define region and explain types of region, comparison between space and region.
- Understanding the planning of region and their characteristics
- Assess the Theories of Regional Development and comparison
- Analysis the factors of development and regional disparities of agriculture , industries , education and health in India.
- Evaluate the five year plan and planning approaches.
- Analyze the metropolitan planning and problems in the metropolitan city.

### **Course outcomes (COs):**

After completing this course on M.Sc. Geography, GEOG-203 Regional Development and Planning (with Special Reference to India) the students will be able to understand and answer on the topics of Regional Development: Concept of Space and Region, Typology of Regions, Planning Regions; planning regions of India and their characteristics, Theories of Regional Development: Theory of Polarized Development, F. Perroux Model, Hirschman Theory, Myrdal Theory; Theory of Development from below by J. Friedman, Ecological Theory of Sustainable Development Development and Regional Disparities in India since Independence, (i) Disparities in Agricultural Development, (ii) Disparities in Industrial Development., (iii) Disparities in Human Resource Development in terms of education and health, Approaches to regional planning in India., Planning in India through Five Year Plans; Special Area Development Plans., Metropolitan Planning; Regional Problems and Prospects in India.

### **Reference books:**

1. Chandna, R.C. (2000): Regional Planning : A Comprehensive Text. Kalyani Publishers., New Delhi.
2. Chaudhuri, J.R. (2001) : An Introduction to Development and Regional Planning with special reference to India. Orient Longman, Hyderabad.
3. Friedmann, J. and Alonso, W. (ed.) (1973) : Regional Development and Planning. The MIT Press, Mass.
4. Hettne, B.; Inotai, A. and Sunkel, O.(eds.) (1999-2000): Studies in the New Regionalism. Vol. I-V. Macmillan Press, London.
5. Kuklinski, A.R. (1972): Growth Poles and Growth Centres in Regional Planning. Mouton and Co., Paris.
6. Kuklinski, A.R. (ed.) (1975): Regional Development and Planning : International Perspective, Sijthoff-Leydor.
7. Leys, C. (1996): The Rise and Fall of Development Theory. Indian University Press, Bloomington, and James Curry, Oxford.
8. Mahapatra, A.C. and Pathak, C.R. (eds.) (2003): Economic liberalization and Regional Disparities in india. Special Focus on the North Eastern Region. Star Publishing House, Shillong.
9. Mahesh Chand and V. K. Puri ; Regional Planning in India, Allied Publishers, New Delhi, 1983.
10. Misra, R.P. (ed.) (1992) : Regional Planning: Concepts, Techniques, Policies and Case Studies. 2nd edition. Concept Publishing Company., New Delhi.
11. Misra, R.P. and Natraj, V.K. (1978): Regional Planning and National Development. Vikas, New Delhi.
12. Planning Commission of India: Eighth Five Year Plan (1992-97) Vol. I, Govt. of India, New Delhi.
13. K. V. Sundaram : Urban and Regional Planning in India, Vikas Publishing House, 1986, New Delhi
14. R. P. Mishra, (1988), Moonis Raza (ed) Regional Development Vol. 10, Contribution to Indian Geography Heritage Publishers, New Delhi.
15. A. Kundu and Moonis Raza (1988) : Indian Economy: The Regional Dimension, CSRD/SSS, JNU. New Delhi.
16. S.C. Patnaik, (1981), Economics of Regional Development and Planning in Third World Countries, Associate Publishing House, New Delhi

## Lesson Plan

<b>Week No</b>	<b>Scheduled Dates</b>	<b>Topics to be covered</b>
<b>1</b>	<b>1-6 January</b>	Introduction Regional Development: Concept of Space and Region,
<b>2</b>	<b>8-13 January</b>	Typology of Regions, Planning Regions;
<b>3</b>	<b>15-20 January</b>	Planning regions of India and their characteristics Class test
<b>4</b>	<b>22-27 January</b>	Theories of Regional Development: Theory of Polarized Development, F. Perroux Model,
<b>5</b>	<b>29-3 February</b>	Hirschman Theory, Myrdal Theory; Theory of Development from below by Friedman,
<b>6</b>	<b>5-10 February</b>	Ecological Theory of Sustainable Development
<b>7</b>	<b>12-17 February</b>	Development in terms of education and health
<b>8</b>	<b>19-24 February</b>	Development and Regional Disparities in India since Independence
<b>9</b>	<b>26-2 March</b>	Disparities in Agricultural Development
<b>10</b>	<b>4-9 March</b>	Disparities in Industrial Development.
<b>11</b>	<b>11-16 March</b>	Disparities in Human Resource Class test
<b>12</b>	<b>18-23 March</b>	Approaches to regional planning in India
<b>13</b>	<b>1-6 April</b>	Planning in India through Five Year Plans; Special Area Development Plans.
<b>14</b>	<b>8-13 April</b>	Metropolitan Planning; Regional Problems and Prospects in India
<b>15</b>	<b>15-20 April</b>	Old question paper discussion and prepare short question
<b>16</b>	<b>22-27 April</b>	Class test and revision

**Government PG College, Ambala Cantt**

**Course File(Session 2023-24)**

**Name of Professor: Dolon Kaler**

**Class: : M.Sc. Geography/4<sup>th</sup> Semester**

**Subject code and Name: GEOG-403(i)/ Regional development and planning (with special reference of Haryana)**

## **SYLLABUS**

**Maximum Marks: 100**

**End term Exam marks: 80**

**Minimum Pass Marks: 32**

**Internal: 20**

**Time: 3 hours**

**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 unit. The candidate shall attempt FOUR long questions, one from each unit. Question 1 carries 20 marks while remaining four questions carry 15 marks each.**

### **UNIT-I**

1. Concept and types of regions and regionalization
2. Regional Diversities in India
3. Critical Review of schemes of regionalization of India: Baker and Stamp, Pithawala, Spate and Learmonth and R L Singh.

### **UNIT-II**

4. Macro Regions of India: Himalayas, Indo-Ganga Plains, Indian Peninsula; physical and socio-economic characteristics
5. Bases of demarcation of Meso Regions in India.
6. Schemes of socio-economic regionalization: Asok Mitra, P.Sengupta & Galina Sadasyuk, B.K. Roy.

### **UNIT-III**

7. Physical and economic diversities in Haryana
  - i. Relief, Climate, Drainage, Groundwater, Soils and Natural Vegetation
  - ii. Agriculture and its spatial organization
  - iii. Industry, Transport and Communication

### **UNIT-IV**

8. Demographic characteristics and diversities in Haryana.
9. Social diversities in terms of education and health in Haryana.
10. Social region of Haryana.

**Course Objectives:**

The course objectives outlined are as follows:

- Define region and explain regionalisation
- Assess the factors of regional diversity in India.
- The critical analysis the scheme of regionalization.
- Evaluate the physical and economic diversities in Haryana.
- Describe and explain the demographic and social diversities in Haryana.
- Assess the impact of the social region of Haryana.

#### **Course outcomes (COs):**

**After completing this course on M.Sc. Geography, GEOG- 403 (i) Regional Geography of India (with special reference to Haryana)** the students will be able to understand and answer on the topics of **Concept** and types of regions and regionalization, Regional Diversities in India, Critical Review of schemes of regionalization of India: Baker and Stamp, Pithawala, Spate and Learmonth and R L Singh, Macro Regions of India: Himalayas, Indo-Ganga Plains, Indian Peninsula; physical and socio-economic characteristics, Bases of demarcation of Meso Regions in India, Schemes of socio-economic regionalisation: Asok Mitra, P.Sengupta & Galina Sadasyuk, B.K. Roy, Physical and economic diversities in Haryana, i. Relief, Climate, Drainage, Groundwater, Soils and Natural Vegetation, ii.agriculture and its spatial organization, iii. Industry, Transport and Communication, Demographic characteristics and diversities in Haryana, Social diversities in terms of education and health in Haryana, Social region of Haryana.

#### **Reference books:**

1. Deshpande CD (1992), India: A Regional Interpretation, ICSSR and Northern Book Centre.
2. Singh, RL (ed.) (1971): India- A Regional Geography, National Geographical Society, Varanasi
3. Singh, Jasbir singh (1976) Agricultural Geography of Haryana, Vishal Publishers, Kurukshetra.
4. Spate OHK And ATA Learmonth (1971)- India and Pakistan, Methuen, London.
5. Tirtha R and Gopal Krishna (1996), Emerging India, Rawat Publications, Jaipur.
6. Census of India (1981) Regional Division in Haryana.
7. Census of India (2001), Administrative Atlas of Haryana.
8. FICCI (2007), State of Infrastructure in Haryana.
9. [www.nic.gov.in](http://www.nic.gov.in) (web site related to Haryana).

### Lesson plan

<b>Week No</b>	<b>Scheduled Dates</b>	<b>Topics to be covered</b>
<b>1</b>	<b>1-6 January</b>	Concept and types of regions and regionalization
<b>2</b>	<b>8-13 January</b>	Regional Diversities in India
<b>3</b>	<b>15-20 January</b>	Critical Review of schemes of regionalization of India: Baker and Stamp, Pithawala, Spate and Learmonth and R L Singh.
<b>4</b>	<b>22-27 January</b>	Macro Regions of India: Himalayas, Indo-Ganga Plains, Indian Peninsula; physical and socio-economic characteristics
<b>5</b>	<b>29-3 February</b>	Bases of demarcation of Meso Regions in India. Class test
<b>6</b>	<b>5-10 February</b>	Schemes of socio-economic regionalisation: Asok Mitra, P.Sengupta & Galina Sadasyuk, B.K. Roy
<b>7</b>	<b>12-17 February</b>	Physical and economic diversities in Haryana
<b>8</b>	<b>19-24 February</b>	Relief, Climate, Drainage,
<b>9</b>	<b>26-2 March</b>	Groundwater, Soils and Natural Vegetation
<b>10</b>	<b>4-9 March</b>	Agriculture and its spatial organization Industry Transport and Communication,
<b>11</b>	<b>11-16 March</b>	Demographic characteristics and diversities in Haryana. Class test
<b>12</b>	<b>18-23 March</b>	Social diversities in terms of education and health in Haryana. Education and health in Haryana.
<b>13</b>	<b>1-6 April</b>	Social region of Haryana Class test
<b>14</b>	<b>8-13 April</b>	revision
<b>15</b>	<b>15-20 April</b>	Old question paper discussion and prepare short question
<b>16</b>	<b>22-27 April</b>	Class test and revision

**Government PG College, Ambala Cantt**

**Course File(Session 2023-24)**

**Name of Professor: Dolon Kaler**

**Class: : M.Sc. Geography/4<sup>th</sup> Semester**

**Subject code and Name: GEOG-402 Hydrology and Oceanography**

## **SYLLABUS**

**Maximum Marks: 100**

**End term Exam marks: 80**

**Minimum Pass Marks: 32**

**Internal: 20**

**Time: 3 hours**

### **UNIT-I**

1. Definition, nature, scope and historical development of hydrology. Relationship of hydrology With other physical sciences.
2. Hydrological cycle, estimation of global water budget, human impact on hydrological cycle.

### **UNIT-II**

3. Rainfall: frequency, intensity and measurement, accuracy of rainfall measurement, determination of average rainfall (Arithmetic mean, Thiessen polygon, isohyetal methods), variations in rainfall and world distribution.
4. Sources and measurement of stream flow, hydrograph and its components, analysis of hydrograph, factors affecting the hydrograph shape, methods of hydrograph separation, variations in runoff, rainfall-runoff relationship.

### **UNIT-III**

5. Major topographic features of ocean basins, bottom relief of Atlantic, Pacific and Indian oceans.
6. Sources, classification and distribution of ocean deposits, corals-origin, types and conditions for development. Theories of the origin of coral reefs (Subsidence and standstill).

### **UNIT-IV**

7. Origin, causes, types and effects of the ocean currents, currents of the Atlantic, Pacific and Indian oceans.
8. Oceanic temperature distribution and causes of variation
9. Composition of oceanic water and distribution of salinity.

**Test books:** Hydrology and oceanography, Dr. Savinder Singh and Oceanography Dr. D.S.lal

**Suggested books:**

1. Chorley, R. J. Water, Earth and Man, Methuen, London, 1969.
2. Rao, K.L. India's Water Wealth, Orient Longman, New Delhi, 1975.
3. Ward, WC, Principles of Hydrology, McGraw Hill, New York, 1967
4. King CAM, Oceanography for Geographers, 1962
5. Subramanya K. 1994. Engineering Hydrology, Tata McGraw-Hill Publishing Company Limited, New Delhi.
6. Patra K.C. 2010. Hydrology and Water Resource Engineering, Norsa Publishing House, New Delhi.
7. Reddi, P.J. 1992. A Text Book of Hydrology, Laxmi Publications, New Delhi.
8. Siddhartha, K.1999. Oceanography-A brief Introduction, Kisalaya Publications, New Delhi.
9. Lal, DS. 2007. Oceanography. Sharda Pustak Bhawan, Allahabad.
10. Singh. S. 2008. Oceanography. Prayag Pustak Bhawan, Allahabad
11. Sharma RC and Vatal M. 1993. Oceanography for Geographers, Chaitanya Publishing House, Allahabad.

**Course Objectives:**

The course objectives outlined are as follows:

- Define hydrology and explain the nature and scope.
- Examine the Historical development of Hydrology.
- Explain and comparison between other physical science.
- Define Hydrological cycle, analysis estimation of global water budget
- Assess the human impact of Hydrological cycle.
- The critical analysis the Rainfall: frequency, intensity and measurement, accuracy of rainfall measurement.
- Evaluate the topographic features of ocean basins, bottom relief of Atlantic, Pacific and Indian oceans.
- Understanding the Sources, classification and distribution of ocean deposits, corals-origin, types and conditions for development.
- Describe and explain the Origin, causes, types and effects of the ocean currents.
- Assess the impact of the Atlantic, Pacific and Indian oceans.
  
- Analysis the comparison between ocean water temperature and salinity.

## Course outcomes (COs):

After completing this course on M.Sc. Geography, GEOG-402 Hydrology and Oceanography the students will be able to understand and answer on the topics of Concept and Definition, nature, scope and historical development of hydrology, Relationship of hydrology with other physical sciences, Hydrological cycle, estimation of global water budget, human impact on hydrological cycle, Rainfall: frequency, intensity and measurement, accuracy of rainfall measurement, determination of average rainfall (Arithmetic mean, Thiessen polygon, isohyetal methods), variations in rainfall and world distribution, Sources and measurement of stream flow, hydrograph and its components, analysis of hydrograph, factors affecting the hydrograph shape, methods of hydrograph separation, variations in runoff, rainfall-runoff relationship. Major topographic features of ocean basins, bottom relief of Atlantic, Pacific and Indian oceans, Sources, classification and distribution of ocean deposits, corals-origin, types and conditions for development, Theories of the origin of coral reefs (Subsidence and standstill), Origin, causes, types and effects of the ocean currents, currents of the Atlantic, Pacific and Indian oceans. Oceanic temperature: distribution and causes of variation, Composition of oceanic water and distribution of salinity.

## Lesson plan

Week No	Scheduled Dates	Topics to be covered
1	1-6 January	Definition, nature, scope
2	8-13 January	Historical development of hydrology. Relationship of hydrology With other physical sciences.
3	15-20 January	Hydrological cycle, estimation of global water budget, human impact on hydrological cycle. Class test
4	22-27 January	Rainfall: frequency, intensity and measurement, accuracy of rainfall measurement
5	29-3 February	Rainfall determination of average rainfall (Arithmetic mean, Thiessen polygon, isohyetal methods)
6	5-10 February	variations in rainfall and world distribution
7	12-17 February	Sources and measurement of stream flow, hydrograph and its components, analysis of hydrograph,
8	19-24 February	factors affecting the hydrograph shape, methods of hydrograph separation,
9	26-2 March	variations in runoff, rainfall-runoff relationship Class test
10	4-9 March	Major topographic features of ocean basins, bottom relief of Atlantic, Pacific and Indian oceans.
11	11-16 March	Sources, classification and distribution of ocean deposits, corals-origin, types and conditions for development. Theories of the origin of coral reefs (Subsidence and standstill).

<b>12</b>	<b>18-23 March</b>	Origin, causes, types and effects of the ocean currents, currents of the Atlantic, Pacific and Indian oceans. Class test
<b>13</b>	<b>1-6 April</b>	Oceanic temperature: distribution and causes of variation. of oceanic water and distribution of salinity
<b>14</b>	<b>8-13 April</b>	revision
<b>15</b>	<b>15-20 April</b>	Old question paper discussion and prepare short question
<b>16</b>	<b>22-27 April</b>	Class test and revision