

**University of Mumbai**  
**Revised Syllabus w.e.f. Academic Year, 2017-18 (CBSGS)**  
**S.Y.B.A. Geography, Semester- III**  
**Paper-II: An Introduction to Climatology**  
**COURSE CODE: UAGEO 301 (2017-18), Credit - 3**

<b>Unit-I: Introduction to Climatology</b>		<b>09 (lectures)</b>
1.1	Definition, nature, scope and branches of climatology	
1.2	Concept and elements of weather and climate	
1.3	Composition and structure of atmosphere	
1.4	Insolation: Vertical and horizontal distribution of temperature	
<b>Unit-II : Air Pressure and Atmospheric Circulation</b>		<b>09 (lectures)</b>
2.1	Air pressure: Influencing factors – Tricellular model	
2.2	Horizontal distribution of air pressure	
2.3	Wind: Types of winds – global, regional and local	
2.4	Upper air circulation – jet stream ( concept, origin and effects)	
<b>Unit-III: Humidity and Precipitation</b>		<b>09 (lectures)</b>
3.1	Humidity: Types - absolute, relative and specific	
3.2	Condensation and its forms	
3.3	Precipitation and its types	
3.4	Global distribution of rainfall	
<b>Unit-IV: Climate and Weather Phenomena</b>		<b>09 (lectures)</b>
4.1	Cyclones: tropical and temperate	
4.2	Anti-cyclones and tornados	
4.3	El Nino and Indian monsoon	
4.4	Global warming and climate change	
<b>Unit-V: Practical Component</b>		<b>09 (lectures)</b>
5.1	IMD: Weather signs and symbols, Interpretation of IMD weather	
5.2	maps Construction of :wind rose, climograph and hythergraph	

**Reference Books:-**

1. Ahrens, C.D. (2012): Essentials of Meteorology: An Invitation to the Atmosphere; Cengage Learning, Boston
2. Ahrens, C.D., Jackson, P.L., Jackson, C.E.J. and Jackson, C.E.O. (2012): Meteorology Today: An Introduction to Weather, Climate and the Environment; Cengage Learning; Boston
3. Barry, R.G. and Chorley, R.J. (2003): Atmosphere, Weather and Climate; Psychology Press, Hove; East Sussex.
4. Chawan S.V. (ed) (2015): Physical Geography, Paper I, Published by Director (I/C), Institute of Distance and Open Learning, University of Mumbai.
5. Critchfield, H.J., (1975): general Climatology, Prentice Hall, New Jersey.
6. Lal D.S. (1997): Climatology; Sharda Pustak Bhavan; Allahabad
7. Lydolph, P.E.( 1985): The Climate of the Earth, Rowman Nad Allanheld, Totowa, New Jersey.
8. Mather,J.R.(1974): Climatology: Fundamentals and Applications; Mc Craw Hill Book Co., U.S.A.
9. Matthews, W. H., Kellogg, W., Robinson, G.D. (1971): Man's Impact on Climate; M.I.T. Press Design Dept. U.S.A.
10. Oliver, J.E. (1993): Climatology: An Atmospheric Science, Pearson Education India, New Delhi
11. Rosenberg, N.J., Blad, B.L., Verma, S.B.(1983): Micro-climate Biological Environment; John Wiley & Sons, U.S.A.
12. Rumney, G.R. (1968): Climatology and the World Climates, Macmillan, London.
13. Shinde P. ; Pednekar H. et.al. (2010): Introduction to Geography, Sheth Publishers Pvt.Ltd., Mumbai.
14. Subrahmanyam, V.P. (ed) (1983): Contributions to Indian Geography a) Vol III- General Climatology, b) Volume IV- Applied Climatology. Heritage Publishers, New Delhi.
15. Trewartha, G.T. (1980): An Introduction to Climate; McGraw Hill, New York, 5<sup>th</sup> edition, (International Student Edition)

---

**University of Mumbai**

**Question Paper Pattern**

**Revised Syllabus w.e.f. Academic Year, 2017-18 (CBSGS)**

**S.Y.B.A. Geography, Semester- III**

**Paper-II: An Introduction to Climatology**

**COURSE CODE: UAGEO 301 (2017-18)**

<b>Duration: 3 hours</b>	<b>Marks: 100</b>
<b>N.B.</b> 1. All questions are compulsory and carry equal marks. 2. Use of Map Stencils and simple Calculator is allowed. 3. Attach appendix along with answer paper.	

<b>Q. 1</b>	<b>Practical, Unit – V</b> A) Weather signs and symbols B) Interpretation / question answers on weather maps C) Construction of one diagram based on climatic data	<b>20 marks</b> (05 Marks) (05 Marks) (10 Marks )
<b>Q. 2</b>	<b>Unit-I</b>	<b>20 Marks</b>
<i>OR</i>		
<b>Q.2</b>	<b>Unit-I</b>	<b>20 Marks</b>
<b>Q. 3</b>	<b>Unit-II</b>	<b>20 Marks</b>
<i>OR</i>		
<b>Q. 3</b>	<b>Unit-II</b>	<b>20 Marks</b>
<b>Q. 4</b>	<b>Unit-III</b>	<b>20 Marks</b>
<i>OR</i>		
<b>Q. 4</b>	<b>Unit-III</b>	<b>20 Marks</b>
<b>Q. 5</b>	<b>Unit-IV</b>	<b>20 Marks</b>
<i>OR</i>		
<b>Q. 5</b>	<b>Unit-IV</b>	<b>20 Marks</b>

-----

**University of Mumbai**  
**Revised Syllabus w.e.f. Academic Year, 2017-18 (CBSGS)**  
**S.Y.B.A. Geography - Semester- III**  
**Paper-III: Physical Geography of India**  
**COURSE CODE: UAGEO 302 (2017-18), Credit - 3**

<b>Unit-I: Introduction of India</b>		<b>09 (lectures)</b>
1.1	India: Location , extent and significance	
1.2	India: Major physiographic divisions and their formation	
1.3	Mountainous region of India	
1.4	North Indian plains	
1.5	Peninsular plateau of India	
1.6	Coastal plains and islands of India	
<b>Unit-II: Drainage and Climate</b>		<b>09 (lectures)</b>
2.1	Drainage System in India (Himalayan and Peninsular drainage system )	
2.2	Major Himalayan rivers of India	
2.3	Major Peninsular Rivers of India	
2.4	Major lakes of India	
2.5	Seasons in India	
2.6	Distribution of rainfall in India	
<b>Unit-III: Soils and Natural Vegetation</b>		<b>09 (lectures)</b>
3.1	Classification of soils of India	
3.2	Problems associated with soils and its remedies in India	
3.3	Classification of Forest in India	
3.4	Importance of Forest in Indian context	
3.5	Deforestation and measures of forests conservation in India	
<b>Unit-IV: Mineral and Power Resources</b>		<b>09 (lectures)</b>

4.1	Distribution of Metallic Minerals in India: Iron ore, manganese, bauxite, copper and other important minerals	
4.2	Distribution of Non-Metallic Minerals in India: Mica, limestone, gypsum, clay and other important minerals	
4.3	Distribution of Power Resources : Coal, mineral oil and natural gas, thorium and uranium	
4.4	Depletion and conservation of minerals and power resources in India	
<b>Unit-V: Practical Component</b>		<b>09 (lectures)</b>
5.1	Map filling: Showing geographical features in the Map of India (Related to physiography)	
5.2	Map Scale – Types, Conversion and drawing	

**Reference books:-**

1. Deshpande C.D. (1992): India: A Regional Interpretation, Northern Book Centre, New Delhi.
2. Bharucha, F.R. (1983): A text book of the plant geography of India, Oxford University Press, Bombay.
3. Dikshit, K.R.(1991): Environment, Forest Ecology and man in the Western Ghats- The Case of Mahabaleshwar Plateau, Rawat Publications, New Delhi.
4. Forest Survey of India: State Forests Reports, Dehradun.
5. Khullar, D.R. (2014): India: A Comprehensive Geography; Kalyani Publishers
6. Miller, R.W. et al. (1995): Soil in Our Environment, Prentice hall, U.S.A.
7. Raychudhari, S.P.(1958): Soils of India, ICAR, New Delhi
8. Robinson, F (ed.) (1989): The Cambridge Encyclopedia of India, Pakistan, Bangladesh and Sri Lanka, Cambridge University Press.
9. Savindra Singh (2006) : Physical Geography of India ; Pravalika Publications, Allahabad.
10. Sharma T.C. ( 2013) Economic Geography of India; Rawat Publications, New Delhi.

11. Shinde P. ; Pednekar H. et.al. (2010): Introduction to Geography, Sheth Publishers Pvt.Ltd., Mumbai.
12. Shinde P. ; Pednekar H. et.al. (2011): Economic Geography of India, SYBA paper II Sheth Publishers , Pvt.Ltd., Mumbai
13. Singh, R.L. (1971): India-A Regional Geography, National Geographical Society of India, Varanasi.
14. Tirth, R (1996): Geography of India, Rawat Publications, Jaipur.
15. Majid Hussain (2014, 5<sup>th</sup> edition): Geography of India, McGraw Hill Education (India) Private Ltd, Uttar Pradesh..

**University of Mumbai**  
**Question Paper Pattern**  
**Revised Syllabus w.e.f. Academic Year, 2017-18 (CBSGS)**  
**S.Y.B.A. Geography, Semester- III**  
**Paper-III: Physical Geography of India**

Duration: 3 hours		Marks: 100	
<b>N.B.</b> 1. All questions are compulsory and carry equal marks. 2. Use of Map Stencils and simple Calculator is allowed. 3. Attach appendix along with answer paper.			
Q. 1	Practical, Unit - V		
	5.1		10 Marks
	5.2		10 Marks
Q. 2	Unit-I		20 Marks
OR			
Q.2	Unit-I		20 Marks
Q. 3	Unit-II		20 Marks
OR			
Q. 3	Unit-II		20 Marks
Q. 4	Unit-III		20 Marks
OR			
Q. 4	Unit-III		20 Marks
Q. 5	Unit-IV		20 Marks
OR			
Q. 5	Unit-IV		20 Marks

**University of Mumbai**  
**Revised Syllabus w.e.f. Academic Year, 2017-18 (CBSGS)**  
**S.Y.B.A. Geography, Semester- IV**  
**Paper-II: Introduction to Oceanography**  
**COURSE CODE: UAGEO 402 (2017-18), Credit - 3**

<b>Unit-I: Nature of Oceanography</b>		<b>09 (lectures)</b>
1.1	Origin and Development of Oceanography	
1.2	Oceanography : meaning, definition, nature and scope	
1.3	Branches of oceanography: physical chemical and biological	
1.4	Major Oceans and its characteristic features	
<b>Unit-II: Bottom Relief and Ocean Water</b>		<b>09 (lectures)</b>
2.1	Ocean floor and its characteristics	
2.2	Composition of ocean water	
2.3	Factors affecting ocean water temperature	
2.4	Vertical and horizontal distribution of ocean temperature	
2.5	Factors affecting salinity of ocean water	
2.6	Vertical and horizontal distribution of oceanic salinity	
<b>Unit-III: Movements of Ocean Water</b>		<b>09 (lectures)</b>
3.1	Waves- Formation and types	
3.2	Tsunami and their effects on coast	
3.3	Concept and types of Tides	
3.4	Equilibrium theory of Tides	
3.5	Ocean Currents – types and their effects	
<b>Unit-IV: Man and Ocean</b>		<b>09 (lectures)</b>
4.1	El- Niño and La-Niña phenomenon	
4.2	Coral reefs and their importance	
4.3	Marine Ecosystem	
4.4	Marine pollution	
4.5	Oceans and global climate change	
<b>Unit-V: Practical Component</b>		<b>09 (lectures)</b>
5.1	Map filling : Related to Oceanography	
5.2	Reading and Interpretation of navigation charts and bathymetric maps	

**Reference books:-**

1. Bhatt, J.J. 91978): Exploring the Planet Ocean, D.Von Nostrand Co.New York.
2. Birla Economic Research Foundation, economic Research Division 91992): The Oceans, Allied Publishers Ltd. New Delhi.
3. Chandra, S. and Others (eds).(1993): The Indian Ocean and its islands: Strategic Scientific and Historical perspectives, sage Publications, New Delhi.
4. Chawan S.V. (ed) (2015): Physical Geography, Paper I, Published by Director (I/C), Institute of Distance and Open Learning, University of Mumbai.
5. Fairbridge, R.W.ed) Encyclopeadia of Oceanography, Reinholt, New York.
6. Sharma, R.C. (ed)(1985): The Oceans: realities and Prospects, Rajesh Publications, New Delhi.
7. Sengupta,R. and Desa E,(eds) (2001): The Indian Ocean: A Perspective Vol.,I and II Oxford and IBH Publishing Company Private Limited, New Delhi.
8. Paul, P.R.(1998): Invitation to Oceanography, Jones and Bartlett Publishing, Sudbury, Massachusetts.
9. Rajgopalan, R (ed) (1996): Voices for Oceans, A Report to the Independent World Commission on the Oceans, International Ocean Institute, Operational centre, Madras, India.
10. Qasim, S.Z(1998): Glimpses of Indian Ocean, Universities Press(India) Limited, Hyderabad.

**University of Mumbai****Question Paper Pattern****Revised Syllabus w.e.f. Academic Year, 2017-18 (CBSCS)****S.Y.B.A. Geography, Semester- IV****Paper-II- (Introduction to Oceanography)**

Duration: 3 hours		Marks: 100	
<b>N.B.</b> 1. All questions are compulsory and carry equal marks. 2. Use of Map Stencils and simple Calculator is allowed. 3. Attach appendix along with answer paper.			
Q.1	<b>Practical Unit V:</b> 5.1		10 Marks
	5.2		10 Marks
Q. 2	Unit-I		20 Marks
<b>OR</b>			
Q.2	Unit-I		20 Marks
Q. 3	Unit-II		20 Marks
<b>OR</b>			



Q. 3	Unit-II		20 Marks
Q. 4	Unit-III		20 Marks
<b>OR</b>			
Q. 4	Unit-III		20 Marks
Q. 5	Unit-IV		20 Marks
<b>OR</b>			
Q. 5	Unit-IV		20 Marks

---

**University of Mumbai**  
**Revised Syllabus w.e.f. Academic Year, 2017-18 (CBSGS)**  
**S.Y.B.A./ S.Y.B.Sc. Geography, Semester- IV**  
**Paper-III: Agriculture Geography of India**  
**COURSE CODE: UAGEO401 (2017-18) Credit - 3**

<b>Unit-I: Introduction to Agricultural Geography</b>		<b>09 (lectures)</b>
1.1	Definition, nature and scope of agricultural geography	
1.2	Approaches: regional approach, systematic approach, commodity approach, recent approaches	
1.3	Importance of agriculture in Indian economy	
1.4	Factors influencing agriculture in India	
1.5	India a agro-product exporting country	
<b>Unit-II: Introduction to Indian Agriculture</b>		<b>09 (lectures)</b>
2.1	Salient features of Indian agriculture	
2.2	Types of farming in India	
2.3	Major crops of India	
2.4	Agro- climatic regions of India	
2.5	Problems associated with Indian agriculture ( Natural, Socio-Economic and Political)	
<b>Unit-III: Green Revolution in India</b>		<b>09 (lectures)</b>
3.1	Introduction of Green Revolution in India	
3.2	Components of Green Revolution	
3.3	Positive impacts of Green Revolution	
3.4	Negative impacts of Green Revolution	
3.5	Need for sustainable agriculture in India	
3.6	Agriculture in drought prone region and watershed management	
<b>Unit-IV: Recent Trends in Agriculture</b>		<b>09 (lectures)</b>
4.1	White revolution and livestock resources,	
4.2	Genetic engineering, tissue culture and horticulture	
4.3	Poly house agriculture	
4.4	Agro processing in India	
4.5	Agro-tourism	
4.6	Agro forestry	
<b>Unit- V</b>		

Practical Component		09 (lectures)
5.1	Interpretation/ question- answer on thematic maps related to agriculture of India ( NATMO and other )	
5.2	Drawing of Statistical Diagrams and Graphs: Simple line graphs, multiple line, simple bar, compound bar and band graph	

### Reference books:-

1. Bansil, B. C. (1975): 'Agricultural Problems of India', Delhi.
2. Bayliss Smith, T.P. (1987) : The Ecology of Agricultural Systems. Cambridge University Press, London .
3. Berry, B.J.L. et. al.(1976) : The Geography of Economic Systems. Prentice Hall, New York.
4. Gregor, H.P.: Geography of Agriculture. Prentice Hall, New York, 1970.
5. Grigg, D. (1984): 'An Introduction to Agricultural Geography', Hutchinson Publication, London
6. Grigg, D.B.(1974) : The Agricultural Systems of the World. Cambridge University Press, New York.
7. Hartshorn, T.N. and Alexander, J.W. (1988): Economic Geography. Prentice Hall, New Delhi.
8. Morgan W.B. and Norton, R.J.C. (1971): Agricultural Geography. Mathuen, London, .
9. Morgan, W. B. and Munton, R. J. C. (1977): 'Agricultural Geography' Methuen, London.
10. Morgan, W.B.(1978): Agriculture in the Third World - A Spatial Analysis. Westview Press, Boulde.
11. Sauer, C. O. (1952): 'Agricultural Origins and Dispersals', American Geographical Journal
12. Sauer, C.O.(1969): Agricultural Origins and Dispersals. M.I.T. Press, Mass, U.S.A.
13. Singh J.(1997): Agricultural Development in South Asia: A Comparative A Study in the Green Revolution Experiences, national Books Organization, New Delhi.
14. Singh, J. and Dhillon, S. S. (1984): 'Agricultural Geography', McGraw Hill, New Delhi.
15. Singh, J. and Dhillon, S.S. (1988), "Agricultural Geography", 2nd edition, Tata McGraw-Hill, NewDelhi
16. Symons, L. (1972): 'Agricultural Geography', Bell and Sons, London
17. Tarrant, J.R.(1974): Agricultural Geography, Problems in Modern Geography Series, John Wiley and Sons.

18. The Hindu ( 2006): Survey of Indian Agriculture 2006. New Delhi.
19. Wigley, G.(1981), Tropical Agriculture: The Development of Production, 4th edition, Arnold, London

**University of Mumbai**  
**Question Paper Pattern**  
**Revised Syllabus w.e.f. Academic Year, 2017-18 (CBSGS)**  
**S.Y.B.A. Geography, Semester- IV**  
**Paper-III: Agriculture Geography of India**  
**COURSE CODE: UAGEO401 (2017-18)**

<b>Duration: 3 hours</b>		<b>Marks: 100</b>
<b>N.B.</b> 1. All questions are compulsory and carry equal marks. 2. Use of Map Stencils and simple Calculator is allowed. 3. Attach appendix along with answer paper.		
Q. 1	<b>Practical, Unit - V</b>	10 Marks
	5.1	10 Marks
	5.2	10 Marks
Q. 2	Unit-I	20 Marks
<b>OR</b>		
Q.2	Unit-I	20 Marks
Q. 3	Unit-II	20 Marks
<b>OR</b>		
Q. 3	Unit-II	20 Marks
Q. 4	Unit-III	20 Marks
<b>OR</b>		
Q. 4	Unit-III	20 Marks
Q. 5	Unit-IV	20 Marks
<b>OR</b>		
Q. 5	Unit-IV	20 Marks