

III. CORE COURSE [CCGEO103]:

(Credits: Theory-04, Tutorial-01)

Marks: 30 (MSE: 20Th. 1Hr + 5Attd. + 5Assign.) + 70 (ESE: 3Hrs)=100**Pass Marks (MSE:17 + ESE:28)=45****Instruction to Question Setter:**Mid Semester Examination (MSE):

There will be **two** groups of questions in written examinations of 20 marks. **Group A is compulsory** and will contain five questions of **very short answer type** consisting of 1 mark each. **Group B will contain descriptive type five** questions of five marks each, out of which any three are to be answered.

End Semester Examination (ESE):

There will be **two** groups of questions. **Group A is compulsory** and will contain two questions. **Question No.1 will be very short answer type** consisting of five questions of 1 mark each. **Question No.2 will be short answer type** of 5 marks. **Group B will contain descriptive type six** questions of fifteen marks each, out of which any four are to be answered.

Note: There may be subdivisions in each question asked in Theory Examinations

The Mid Semester Examination shall have three components. (a) Two Semester Internal Assessment Test (SIA) of 20 Marks each, (b) Class Attendance Score (CAS) of 5 marks and (c) Class Performance Score (CPS) of 5 marks. “**Better of Two**” shall be applicable for computation of marks for SIA.

(Attendance Upto 75%, 1 mark; 75 < Attd. < 80, 2 marks; 80 < Attd. < 85, 3 marks; 85 < Attd. < 90, 4 marks; 90 < Attd, 5 marks).

CLIMATOLOGY**Theory: 60 Hours; Tutorial: 15 Hours****Unit 1:**

Definitions, nature, scope of Climatology. Elements of weather and climate. Origin, Composition and Structure of atmosphere. Temperature: Solar radiation principles, Greenhouse effects, Horizontal and Vertical distribution of temperature & inversion of temperature. Global warming.

Unit 2:

Atmospheric Pressure: Pressure Gradient, Coriolis Effect, Horizontal and vertical distribution of Air Pressure and Pressure Belts. Winds: Planetary, Monsoons, Local Winds, Jet Streams. Mechanism of monsoon. Humidity and Precipitation. El-Nino and La Nina phenomena, El-Nino-Southern Oscillation (ENSO).

Unit 3:

Air masses: Definition, Nature, Source Region, Classification of air masses. Fronts - Frontogenesis and Frontolysis, Classification of fronts, Cyclones: Tropical Cyclones & Temperate Cyclones - Origin, types, structure and distribution.

Unit 4:

Classification of World climates: Koppen's & Thornthwaite classification. Climatic changes, Weather forecasting, Problems and prospects of weather forecasting in India.

References:

- Savindra Singh (2005): Climatology, Prayag Pustak Bhawan, 20-A, University Road, Allahabad- 02. UP.
- Critchfield H.J. (2005): General Climatology, Prentice Hall of India, Pvt. Ltd. New Delhi-01.
- Lal D.S (2009): Physical Geography, Sharada Pustak Bhawan, II, University Road, Allahabad – UP.
- Siddhartha K (2005): Atmosphere, Weather and Climate, Kislaya Publications Pvt.ltd., C—2, Padma Apartment, Mehruli, New Delhi-30.
- Lal D.S. (2005): Climatology: Sharada Pustak Bhawan, 11, Univ. Road, Allahabad -02, UP.
- Dasgupta A and Kapoor A.N. (1978): Principles of Physical Geography, Chand S & Co. Ltd. New Delhi.
- Strahler A.N. (1976): The Earth Sciences, Harper & Row, Intl. Ed. New York.
- Alka Goutam (2012): Climatology, Prayag Pustak Bhawan, 20 A, University Road, Allahabad – 02, UP
- Tiwari, Ram Kumar (2016) Bhoutik Bhugol, Hindi Granth Academy, Jaipur, (Raj.).