

2025

(NEP—2020)

(3rd Semester)

GEOGRAPHY (MAJOR)

(**Climatology**)

Full Marks : 75

Time : 3 hours

The figures in the margin indicate full marks for the questions

(**SECTION : A—OBJECTIVE**)

(Marks : 10)

Tick (✓) the correct answer in the brackets provided : 1×10=10

1. What is the primary focus of climatology?

- (a) The study of the distribution and patterns of weather and climate ()
- (b) The study of landforms ()
- (c) The study of human-environment interactions ()
- (d) The study of natural vegetation ()

2. The greenhouse gas with the highest concentration in the atmosphere is

- (a) carbon dioxide ()
- (b) methane ()
- (c) water vapor ()
- (d) ozone ()

3. In which layer of the atmosphere does weather occur?

- (a) Mesosphere ()
- (b) Thermosphere ()
- (c) Stratosphere ()
- (d) Troposphere ()

4. The region of calm, light winds and heavy rainfall found near the equator is called

- (a) subpolar lows ()
- (b) trade wind belt ()
- (c) doldrums ()
- (d) horse latitudes ()

5. Temperate cyclones are also known as

- (a) tropical depressions ()
- (b) extra-tropical cyclones ()
- (c) anticyclones ()
- (d) monsoon depressions ()

6. La Nina is characterized by

- (a) unusual warming of the central and eastern Pacific Ocean ()
- (b) unusual cooling of the central and eastern Pacific Ocean ()
- (c) weakening of the Indian monsoon ()
- (d) rise in sea surface temperatures in the Atlantic Ocean ()

7. The classical theory of monsoon was proposed by

- (a) Köppen ()
- (b) Trewartha ()
- (c) Halley ()
- (d) Ferrel ()

8. In Köppen's classification, BWh stands for
- (a) tropical desert climate with average annual temperature $> 18^{\circ}\text{C}$ ()
 - (b) tropical steppe climate with average annual temperature $> 18^{\circ}\text{C}$ ()
 - (c) middle latitude cold desert climate with average annual temperature $< 18^{\circ}\text{C}$ ()
 - (d) middle latitude cold steppe climate with average annual temperature $< 18^{\circ}\text{C}$ ()
9. The primary role of the IPCC is to
- (a) conduct independent climate research ()
 - (b) provide scientific assessments on climate change to policy makers ()
 - (c) enforce environmental treaties ()
 - (d) monitor air quality across the world ()
10. Which one of the following is a characteristic of Thornthwaite climatic classification system?
- (a) Based solely on temperature ()
 - (b) Used precipitation effectiveness index ()
 - (c) Focuses on vegetation types ()
 - (d) Ignores evapotranspiration ()

(SECTION : B—SHORT ANSWERS)

(Marks : 15)

Answer/Write short notes on any *five*, taking at least *one* from each Unit :

3×5=15

UNIT—I

1. What are the factors affecting insolation?
2. Structure of the atmosphere

UNIT—II

3. Describe the wind belts found on the Earth's surface in each hemisphere.
4. Hadley Cells

UNIT—III

5. Discuss the importance of the monsoon to the Indian economy.
6. La Nina

UNIT—IV

7. Causes of increasing concentration of carbon dioxide
8. What are the main causes of climate change?

(SECTION : C—DESCRIPTIVE)

(Marks : 50)

Answer *five* questions, taking at least *one* from each Unit : 10×5=50

UNIT—I

1. What is climatology? Discuss the scope of climatology. 2+8=10
2. Explain the heat budget of the Earth with suitable diagram. 10

UNIT—II

3. How do tropical cyclones originate or form? Describe the weather condition associated with tropical cyclones. 5+5=10
4. What are air masses? Classify air masses based on their source regions. 2+8=10

UNIT—III

5. Explain briefly the modern theories of monsoon. 10
6. Describe the origin and distribution of Jet streams. 10

UNIT—IV

7. Explain, in detail, the climatic classification according to Trewartha. 10
8. Define global warming and climate change. Discuss the impacts of climate change. 4+6=10
