Worksheet: Solar Radiation, Heat Balance and Temperature

Gujarat State Board · Class 11 · Geography · 3 questions · 12 marks

Name: _____ Date: _____ Score: _____ / 12

Q1. Out of 100 units of incoming solar radiation: 27 units are reflected by clouds, 8 units by Earth's surface, 14 units are absorbed by the atmosphere, and 51 units are absorbed by Earth's surface. (a) What is Earth's average albedo? (b) What happens to the 51 units absorbed by Earth's surface? (c) Why is Earth's average temperature stable (not continuously rising)? *[3 marks]*

Q2. The city of Mumbai (19°N latitude, coastal) has an annual temperature range of only 7°C (January avg 24°C, May avg 31°C). The city of Delhi (28°N, inland) has an annual range of 22°C (January avg 14°C, May avg 36°C). Explain why their temperature ranges are so different, using at least THREE factors. *[4 marks]*

Q3. Every winter, Delhi's air quality drops to 'severe' (AQI >400) during November–January. Explain the role of temperature inversion in causing this pollution episode. What are the meteorological conditions that create inversion over Delhi in winter? *[5 marks]*