

G10 Science: Class 12 Homework

1. What is the difference between weather and climate? **[2 marks]**

2. List the weather characteristics of today. Write down the date and include the highest and lowest temperature, amount of precipitation, humidity, and atmospheric pressure. **[5 marks]**

3. The average daily maximum temperature in central Egypt reaches 40 degrees C in the summer. There is very little rain – less than 10mm per year. The lack of rain means that there is little vegetation in this part of the country. **[2 marks]**
 - a. In what climate zone does central Egypt belong?

 - b. Is there any part of North America that belongs in the same climate zone?

4. The sun shines continuously on Earth. Explain why Earth does not keep warming up. **[2 marks]**

5. Why is the climate in Nigeria (near the equator) warmer than the climate in Greenland (near North Pole)? **[3 marks]**

6. What role do large bodies of water play in Earth's climate system and the flow of thermal energy? **[3 marks]**

7. How does each of the following affect a region's climate?
 - a. Altitude **[1 mark]**

 - b. Nearness to a mountain range **[1 mark]**

 - c. Which side of a large lake a location is on (i.e. upwind or downwind from the lake) **[2 marks]**

8. Explain why the greenhouse effect is important to life on Earth. **[2 marks]**

9. Explain how greenhouse gas molecules, in contrast to oxygen and nitrogen molecules, trap infrared radiation. **[3 marks]**
10. Scientists and governments are working to reduce ozone levels in the troposphere, but they are trying to protect ozone levels in the stratosphere. Explain why this is not a contradiction. **[4 marks]**
11. Predict what might happen if plants were able to absorb more carbon dioxide. How will this affect the carbon cycle and the production of greenhouse gases? **[2 marks]**
12. Predict what might happen if microorganisms began releasing methane. How will this affect the production of greenhouse gases? **[2 marks]**

13. Give one natural source for each of the following greenhouse gases: **[4 marks]**

a. Carbon Dioxide

b. Methane

c. Nitrous Oxide

d. Water Vapour

14. Use a diagram and explain the rain-shadow effect. Explain why British Columbia and Alberta have very different climates even though they are at the same latitude. **[3 marks]**

15. Explain what is a positive feedback loop. Provide an example. **[2 marks]**

16. Explain what is a negative feedback loop. Provide an example. **[2 marks]**