Teacher Answer Key

Case Study

1. Departure was delayed because the plane had to wait for de-icing in snowy conditions; in the air, strong jet-stream headwinds and route changes to avoid rough air made the flight take longer, leading to a late arrival.

2. The sky looked mostly clear, but the flight still encountered bumps because clear-air turbulence can form near jet streams where there is strong wind shear, even without visible storm clouds.

Multiple Choice

1. B

2. A

3. C

Matching

1-B, 2-C, 3-E, 4-A, 5-D

Fill-in-the-Blank

1) streams, 2) turbulence, 3) icing

Short Answer (Sample Responses)

Q1: Help: flying with a strong jet stream can give planes a tailwind, shortening flight times and saving fuel. Hurt: flying against it can create strong headwinds that slow planes down and increase travel time, especially on popular holiday routes.

Q2: Examples: mechanical turbulence from strong surface winds over rough terrain or buildings—pilots may adjust altitude and airspeed, and controllers may increase spacing; clear-air turbulence near jet streams—pilots change altitude, request different routes, and keep seat belt signs on, using reports from other aircraft and forecasts.

Q3: Turbulence usually means the plane is passing through uneven air currents, which can make the ride uncomfortable but is well within what the aircraft is designed to handle. Safety procedures (like staying buckled and following crew instructions) keep passengers protected, so turbulence is mostly a comfort issue, not a sign that the plane itself is in danger.