Teacher Answer Key

Case Study

1. Marcus's initial climate documentaries generated strong watch time signals, and the algorithm connected him to similar 'serious world events' content. As each new video pushed toward more emotionally intense material — which generates higher engagement — the algorithm kept escalating. YouTube's system (especially pre-2019) optimized for clicks and watch time, and anxious, alarming content tends to drive both.

2. Students should explain that Marcus was not consciously choosing this content — the algorithm amplified a direction based on his engagement data. Concrete steps: clear watch history, use 'Not Interested' on conspiracy content, and actively search for specific trusted sources rather than letting the algorithm choose. Understanding that the system optimizes for attention, not accuracy, is key.

Multiple Choice

1. D
2. C
3. B

Matching

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

Fill-in-the-Blank

1) Netflix, 2) thumbnail, 3) 2019

Short Answer (Sample Responses)

Q1: Collaborative filtering finds users with similar histories and assumes shared taste, while content-based filtering matches the specific attributes of content to a user's behavior patterns. Using both covers blind spots — collaborative filtering helps with discovery across genres, while content-based filtering catches niche preferences that may not have enough similar users to trigger collaborative matches.

Q2: Engagement means getting people to click, watch, and return — which often means emotionally intense, surprising, or provocative content. Accuracy means recommending things that are true, reliable, and genuinely beneficial. These goals conflict because misleading or alarming content can be highly engaging even when it's

harmful. Platforms profit from engagement, which creates a structural disincentive to fully prioritize accuracy.

Q3: Users are customers in the sense that they use the product for free or pay a subscription. They are also products because their behavioral data — every click, pause, and skip — is the raw material that makes the recommendation system work and generates advertising revenue. This matters because it means platforms have a financial interest in maximizing user engagement even at the expense of user wellbeing.