Teacher Answer Key

Case Study

1. The algorithm built Jordan's taste cluster from his extensive listening history in atmospheric rock and drone metal. Because that cluster likely has very little overlap with experimental jazz listeners, the collaborative filtering engine never connected them. The NLP and audio analysis layers reinforce this — the acoustic fingerprints and critical language used for instrumental rock are quite different from jazz, even if the emotional territory overlaps. The filter bubble means the deeper Jordan goes into one genre, the harder it is for the algorithm to bridge to adjacent but structurally different music.

2. Answers will vary. Students who are concerned might argue that when an AI controls what music hundreds of millions of people discover, experimental and genre-defying artists are structurally disadvantaged — the reading notes algorithms favor familiar-sounding, accessible music. Students who are less concerned might argue that users still have search and social sharing. Both should engage with the cultural gatekeeper framing from the reading.

Multiple Choice

1. C

2. B

3. D

Matching

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

Fill-in-the-Blank

1) 2015, 2) danceability, 3) blended

Short Answer (Sample Responses)

Q1: Collaborative filtering identifies users with similar listening histories and generates a candidate pool of songs they've loved. NLP adds a mood and context layer by understanding how critics describe music emotionally. Audio analysis adds a sonic similarity layer by comparing acoustic features. Each technique compensates for the others' weaknesses — collaborative filtering can miss niche taste, NLP can miss sonic texture, audio analysis can miss cultural context.

Q2: The reading describes the algorithmically favored song as instrumentally rich but not too challenging, emotionally resonant but not abrasive, and familiar-sounding

but not derivative. This likely disadvantages truly experimental music, avant-garde genres, work with unusual structures, and artists who deliberately challenge listener expectations — since those qualities tend to reduce completion rates and engagement.

Q3: Answers will vary. A well-structured response might propose a 'novelty ratio' — ensuring a set percentage of each playlist comes from outside the user's current taste cluster. Or it might involve periodic prompts asking users whether they want more exploration or more familiar comfort, letting users toggle between exploitation and discovery modes.