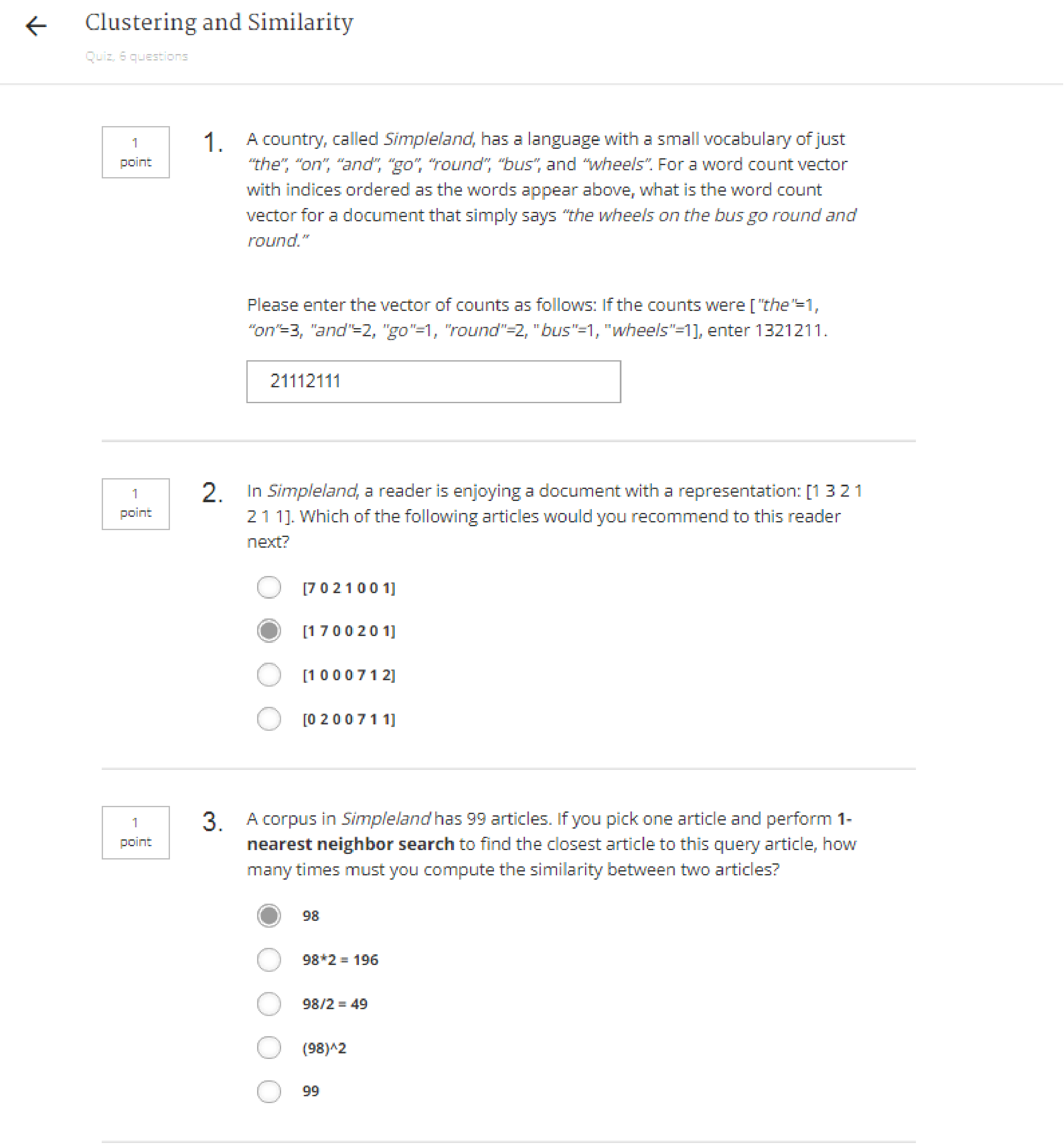
Quiz - Clustering and Similarity



Clustering and Similarity

Quiz, 6 questions

1 point

1. A country, called *Simpleland*, has a language with a small vocabulary of just *"the", "on", "and", "go", "round", "bus"*, and *"wheels"*. For a word count vector with indices ordered as the words appear above, what is the word count vector for a document that simply says *"the wheels on the bus go round and round."*

Please enter the vector of counts as follows: If the counts were [*"the"*=1, *"on"*=3, *"and"*=2, *"go"*=1, *"round"*=2, *"bus"*=1, *"wheels"*=1], enter 1321211.

21112111

1 point

2. In *Simpleland*, a reader is enjoying a document with a representation: [1 3 2 1 2 1 1]. Which of the following articles would you recommend to this reader next?

○ **[7 0 2 1 0 0 1]**

● **[1 7 0 0 2 0 1]**

○ **[1 0 0 0 7 1 2]**

○ **[0 2 0 0 7 1 1]**

1 point

3. A corpus in *Simpleland* has 99 articles. If you pick one article and perform **1-nearest neighbor search** to find the closest article to this query article, how many times must you compute the similarity between two articles?

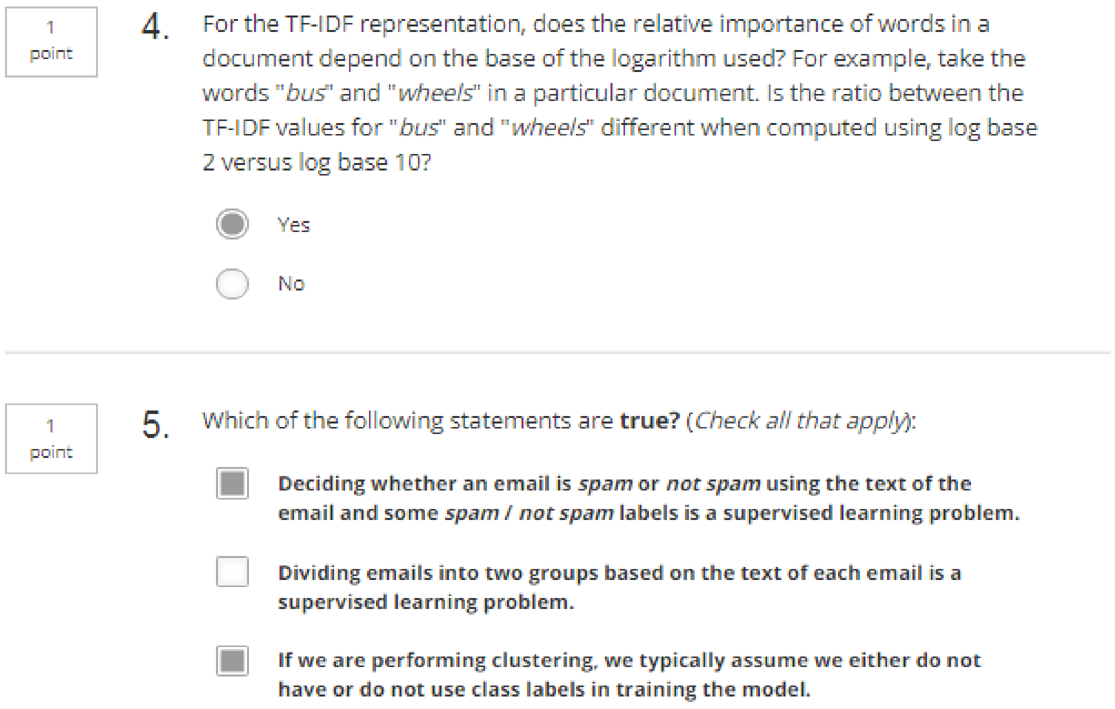
● **98**

○ **98*2 = 196**

○ **98/2 = 49**

○ **(98)^2**

○ **99**



1 point

4. For the TF-IDF representation, does the relative importance of words in a document depend on the base of the logarithm used? For example, take the words "*bus*" and "*wheels*" in a particular document. Is the ratio between the TF-IDF values for "*bus*" and "*wheels*" different when computed using log base 2 versus log base 10?

● Yes

○ No

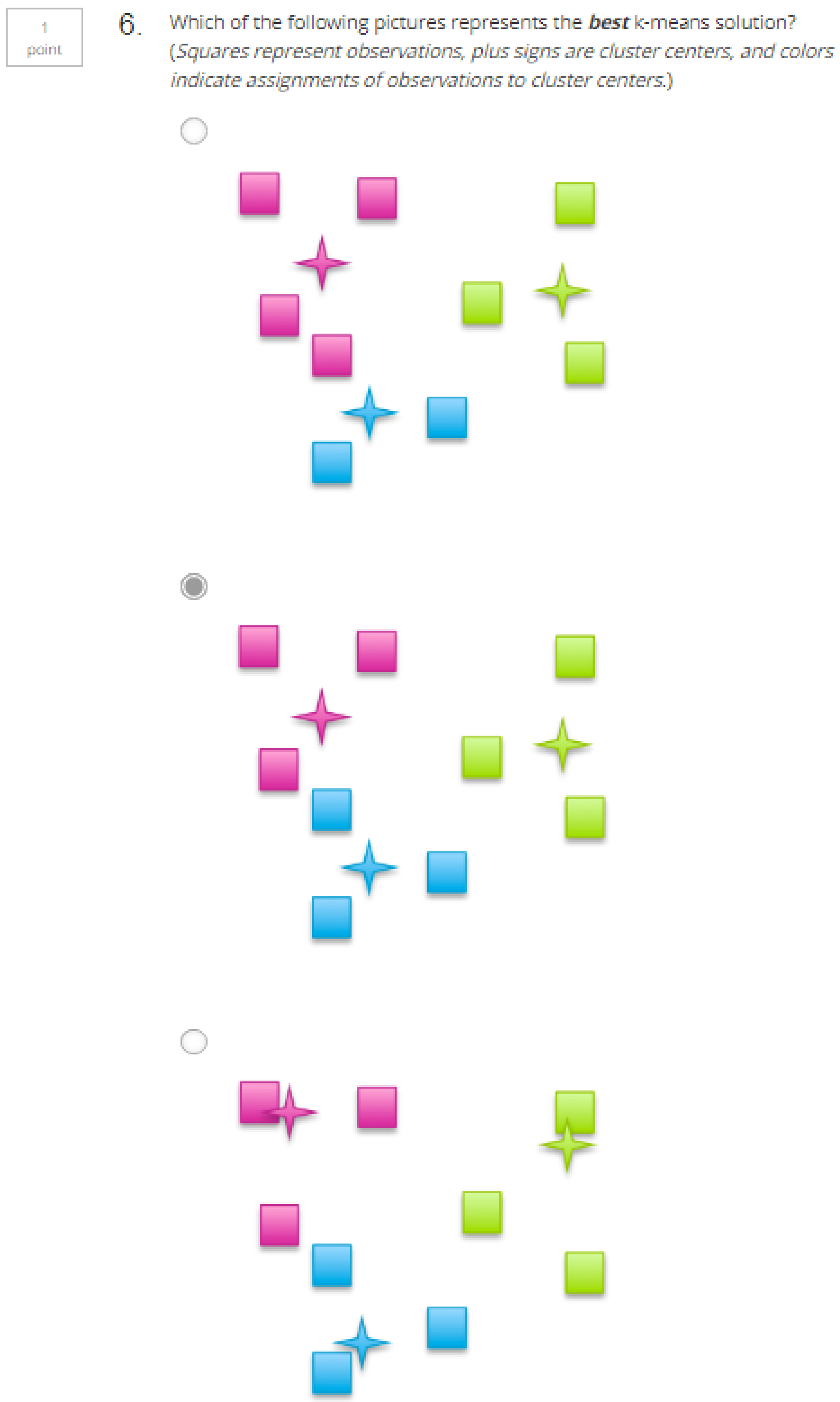
1 point

5. Which of the following statements are **true?** (*Check all that apply*):

☑ **Deciding whether an email is *spam* or *not spam* using the text of the email and some *spam / not spam* labels is a supervised learning problem.**

□ **Dividing emails into two groups based on the text of each email is a supervised learning problem.**

☑ **If we are performing clustering, we typically assume we either do not have or do not use class labels in training the model.**



1 point

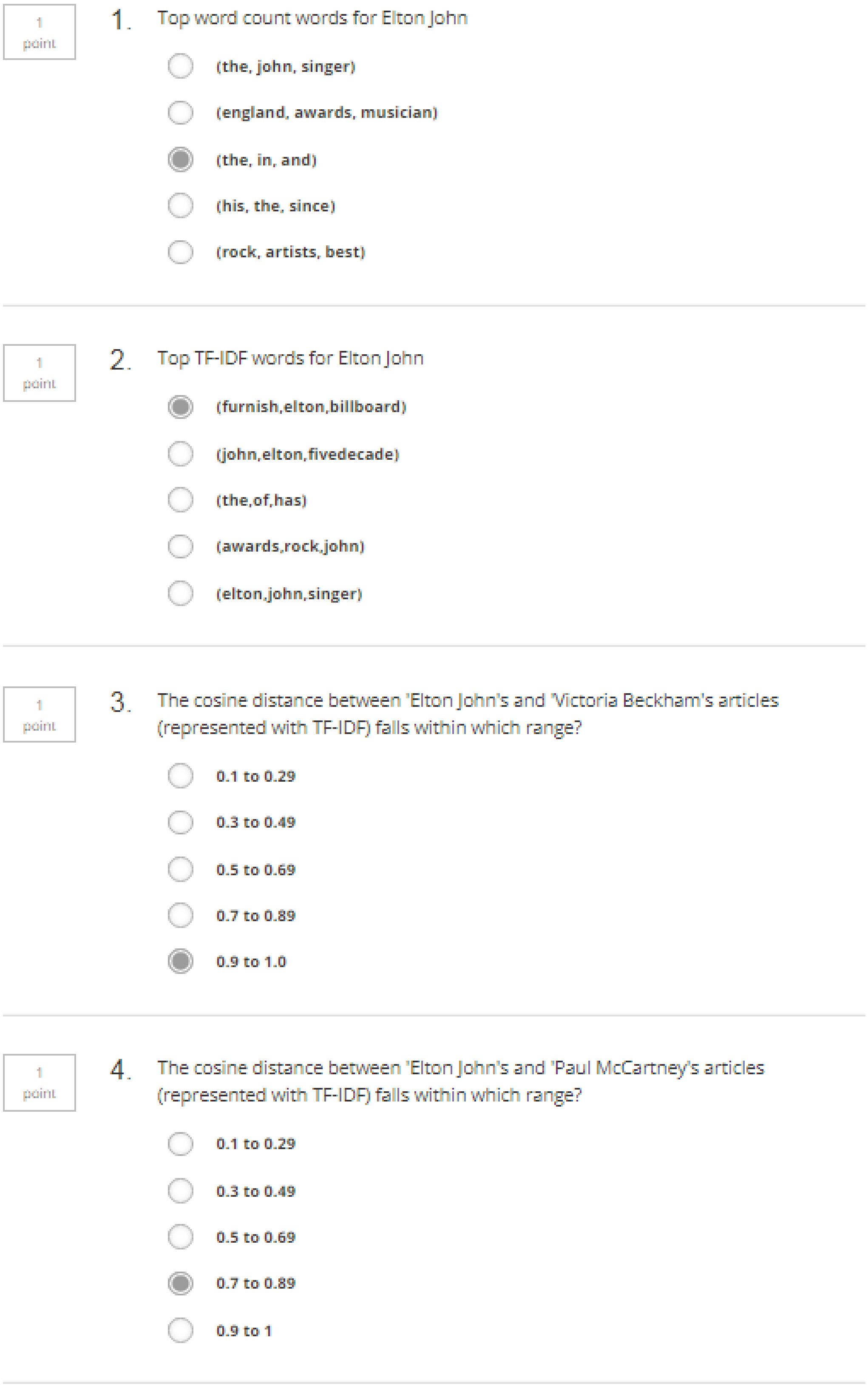
6. Which of the following pictures represents the ***best*** k-means solution? (*Squares represent observations, plus signs are cluster centers, and colors indicate assignments of observations to cluster centers.*)

○

●

○

Assignment - Retrieving Wikipedia articles



1 point

1. Top word count words for Elton John

○ (the, john, singer)

○ (england, awards, musician)

● (the, in, and)

○ (his, the, since)

○ (rock, artists, best)

1 point

2. Top TF-IDF words for Elton John

● (furnish,elton,billboard)

○ (john,elton,fivedecade)

○ (the,of,has)

○ (awards,rock,john)

○ (elton,john,singer)

1 point

3. The cosine distance between 'Elton John's and 'Victoria Beckham's articles (represented with TF-IDF) falls within which range?

○ 0.1 to 0.29

○ 0.3 to 0.49

○ 0.5 to 0.69

○ 0.7 to 0.89

● 0.9 to 1.0

1 point

4. The cosine distance between 'Elton John's and 'Paul McCartney's articles (represented with TF-IDF) falls within which range?

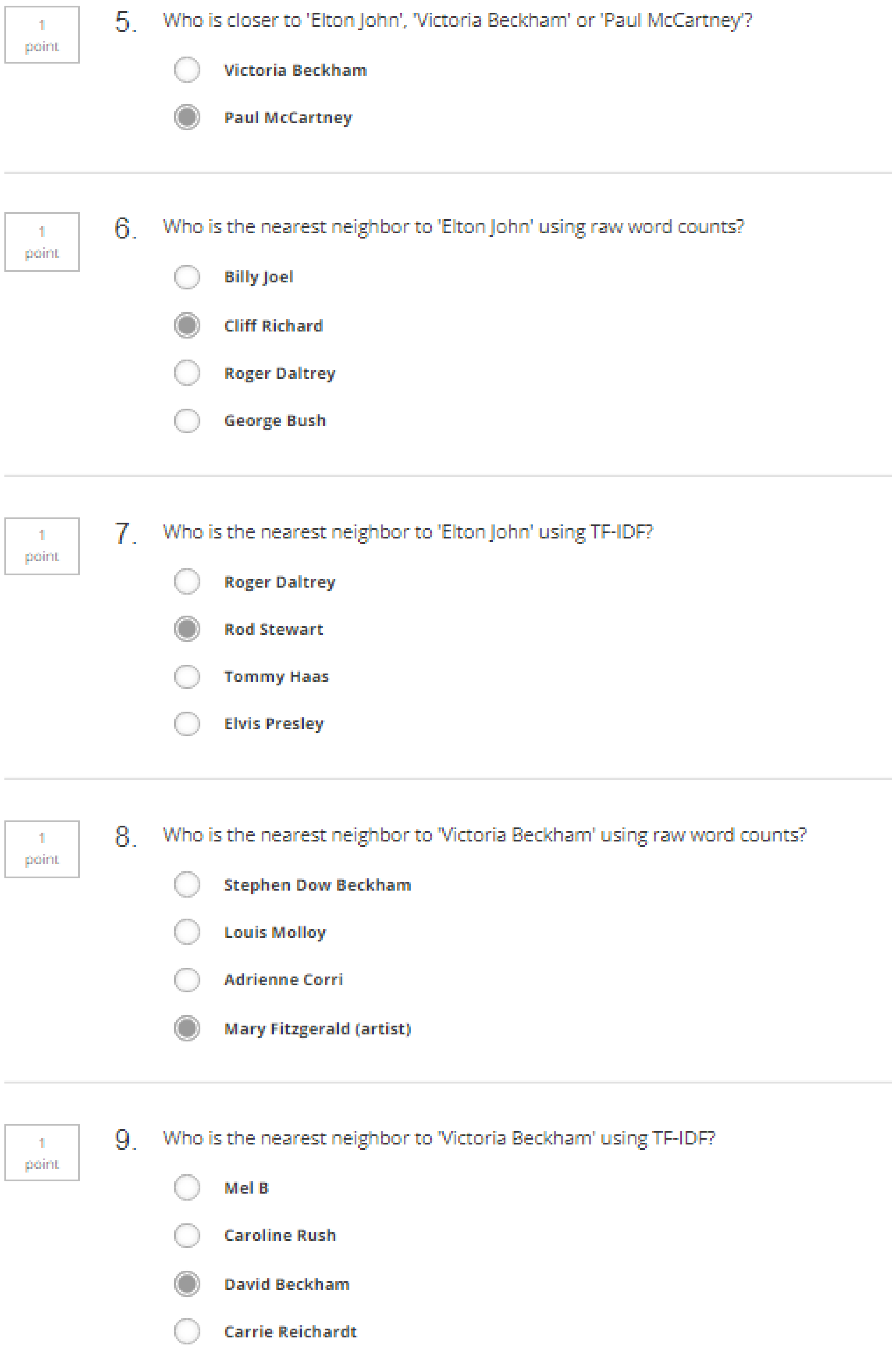
○ 0.1 to 0.29

○ 0.3 to 0.49

○ 0.5 to 0.69

● 0.7 to 0.89

○ 0.9 to 1



1 point

5. Who is closer to 'Elton John', 'Victoria Beckham' or 'Paul McCartney'?

○ Victoria Beckham

● Paul McCartney

1 point

6. Who is the nearest neighbor to 'Elton John' using raw word counts?

○ Billy Joel

● Cliff Richard

○ Roger Daltrey

○ George Bush

1 point

7. Who is the nearest neighbor to 'Elton John' using TF-IDF?

○ Roger Daltrey

● Rod Stewart

○ Tommy Haas

○ Elvis Presley

1 point

8. Who is the nearest neighbor to 'Victoria Beckham' using raw word counts?

○ Stephen Dow Beckham

○ Louis Molloy

○ Adrienne Corri

● Mary Fitzgerald (artist)

1 point

9. Who is the nearest neighbor to 'Victoria Beckham' using TF-IDF?

○ Mel B

○ Caroline Rush

● David Beckham

○ Carrie Reichardt