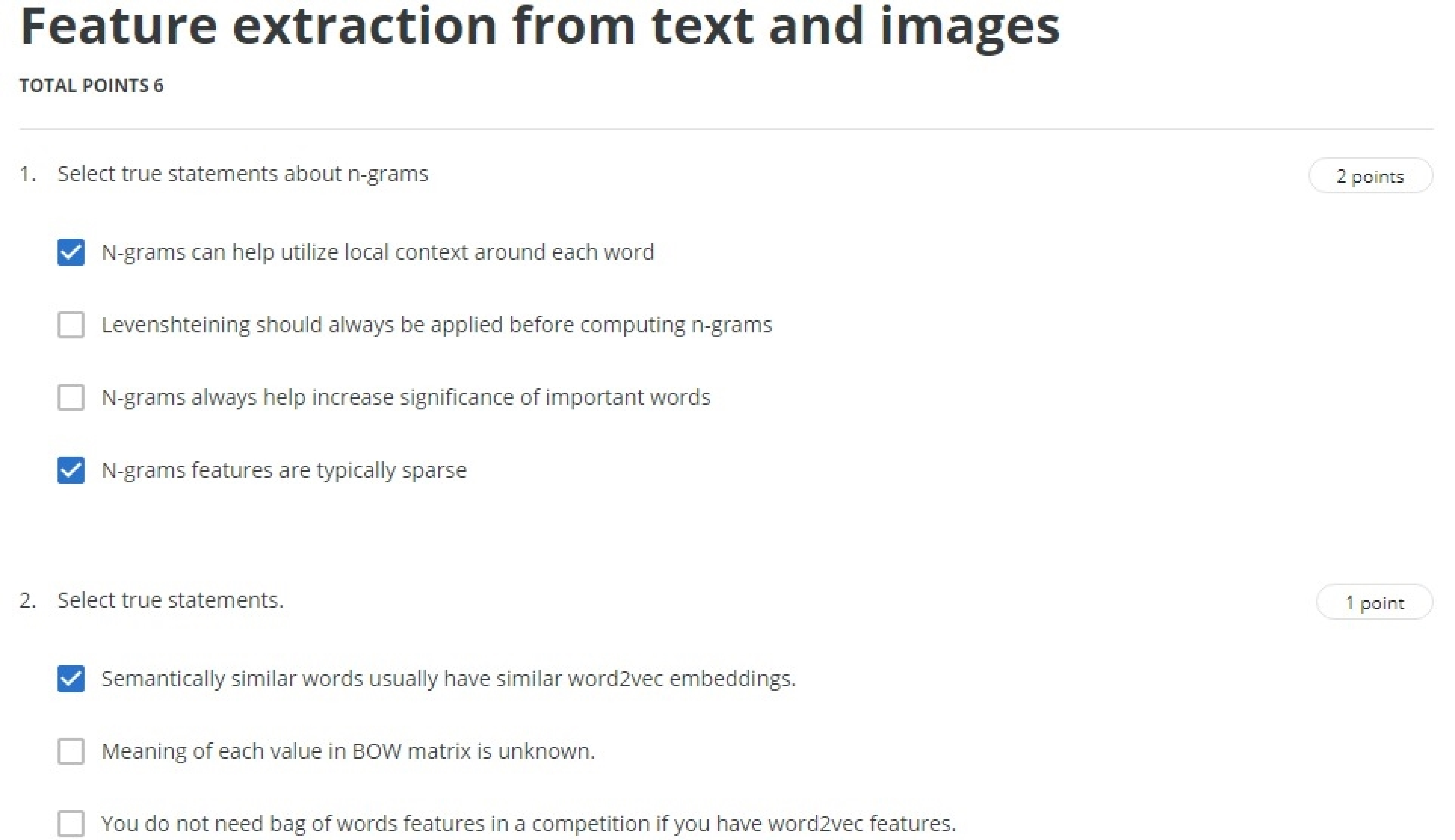


Feature extraction from text and images

TOTAL POINTS 6

1. Select true statements about n-grams

2 points

☑ N-grams can help utilize local context around each word

□ Levenshteining should always be applied before computing n-grams

□ N-grams always help increase significance of important words

☑ N-grams features are typically sparse

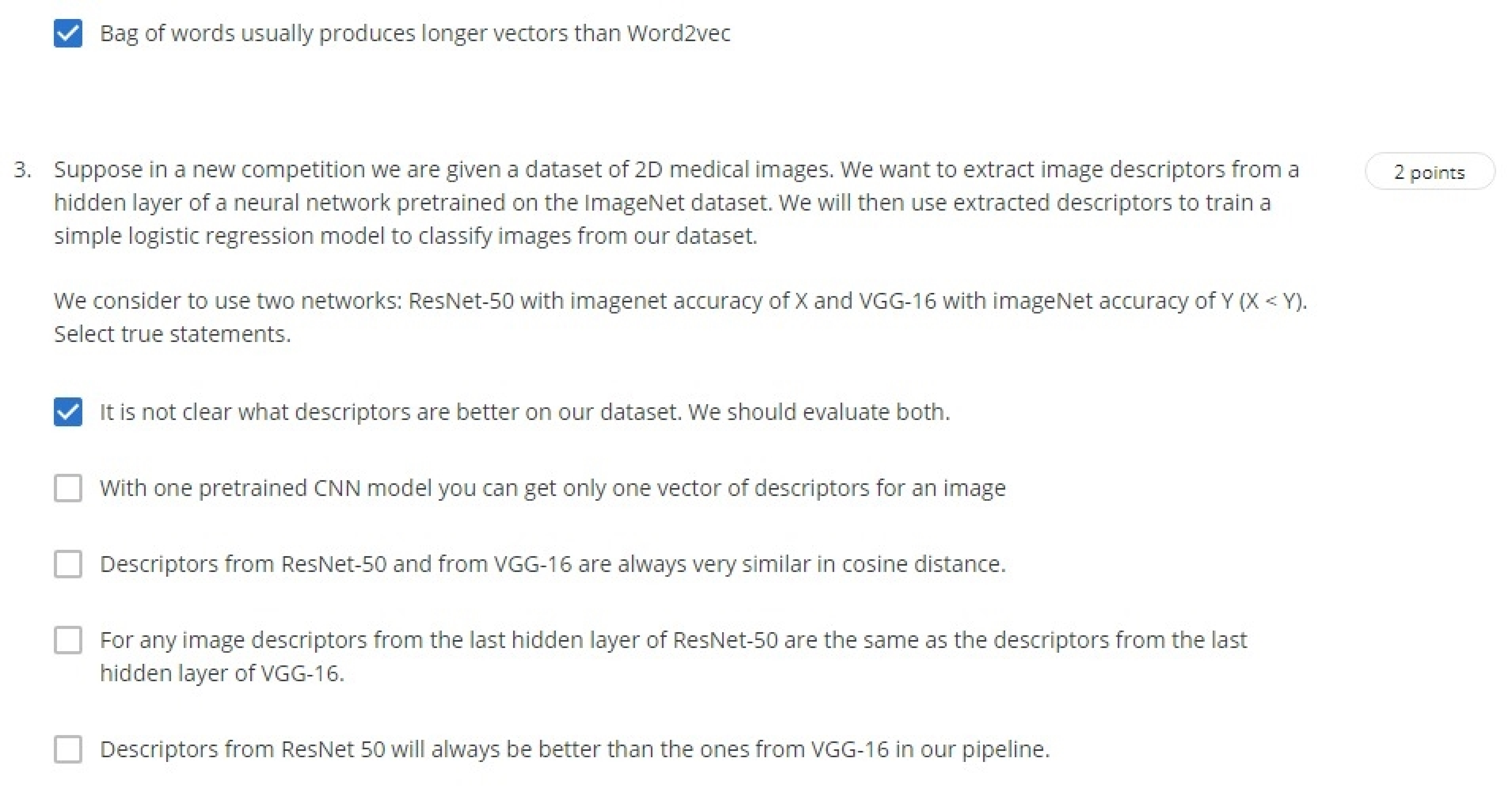
2. Select true statements.

1 point

☑ Semantically similar words usually have similar word2vec embeddings.

□ Meaning of each value in BOW matrix is unknown.

□ You do not need bag of words features in a competition if you have word2vec features.



☑ Bag of words usually produces longer vectors than Word2vec

3. Suppose in a new competition we are given a dataset of 2D medical images. We want to extract image descriptors from a hidden layer of a neural network pretrained on the ImageNet dataset. We will then use extracted descriptors to train a simple logistic regression model to classify images from our dataset.

2 points

We consider to use two networks: ResNet-50 with imagenet accuracy of X and VGG-16 with imageNet accuracy of Y (X < Y). Select true statements.

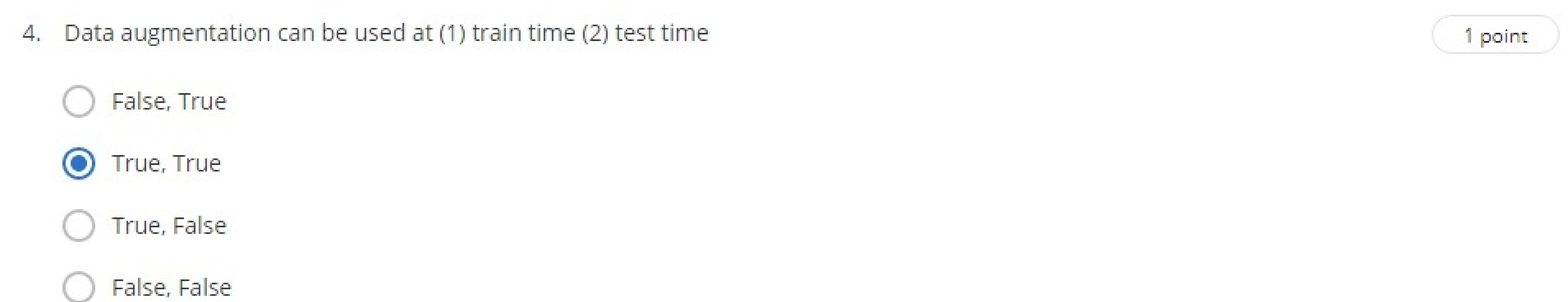
☑ It is not clear what descriptors are better on our dataset. We should evaluate both.

☐ With one pretrained CNN model you can get only one vector of descriptors for an image

☐ Descriptors from ResNet-50 and from VGG-16 are always very similar in cosine distance.

☐ For any image descriptors from the last hidden layer of ResNet-50 are the same as the descriptors from the last hidden layer of VGG-16.

☐ Descriptors from ResNet 50 will always be better than the ones from VGG-16 in our pipeline.



4. Data augmentation can be used at (1) train time (2) test time

1 point

○ False, True

● True, True

○ True, False

○ False, False