



Recommender Systems
Assignment- Week 3
TYPE OF QUESTION: MCQ/MSQ

Number of questions: 10

Total marks: 2×10

QUESTION 1:

Positive definiteness is a property of the distance function. It essentially means

- a) The distance of a point to itself is zero.
- b) The distance matrix is a square matrix.
- c) The distance matrix is a symmetric matrix.
- d) All of the above.

Correct Answer: a

Explanation: Refer to Week 3 lecture 1 slide 5

QUESTION 2:

Jaccard coefficient is a _____ measure for _____ binary variables.

- a) Distance, Symmetric
- d) Distance, Asymmetric
- c) Similarity, Symmetric
- d) Similarity, Asymmetric

Correct Answer: d

Explanation: Refer to Week 3 lecture 1 slide 9

QUESTION 3:

Mahalanobis distance is the same as the Euclidean distance under the following condition.

- a) Data matrix is two dimensional
- b) Data matrix is of multiple dimension



- c) **Covariance matrix is identity matrix**
- d) Covariance matrix is a square matrix

Correct Answer: c

Explanation: Refer to Week 3 lecture 2 slide 4

QUESTION 4:

Which of the following correlation is not appropriate for ordinal variables.

- a) Spearman's
- b) Kendall's
- c) **Pearson's**
- d) None of the above

Correct Answer: c

Explanation: Refer to Week 3 lecture 2 slide 10-13

QUESTION 5:

Many recommendation algorithms have a tendency to suggest popular items. Which of the following characteristic of the rating matrix is responsible for this.

- a) **Distribution of the rating follows long tail property**
- b) The rating matrix is sparse
- c) The rating matrix is biased
- d) The rating matrix contains alpha numeric values

Correct Answer: a

Explanation: Refer to Week 3 lecture 3 slide 4,5

QUESTION 6:

Which of the following neighborhood formation method in UBCF uses the concept similar to nearest neighbourhood algorithm.

- a) **Top-k filtering**
- b) Threshold filtering
- c) Negative filtering
- d) Binary filtering

Correct Answer: a



Explanation: Refer to Week 3 lecture 3 slide 10-13

QUESTION 7:

In item based collaborative filtering, which of the following is used to compute similarity weights?
Consider that rating matrix is an $m \times n$ matrix with m users and n items.

- a) Two columns of the rating matrix considering all the entries and setting the missing values as zero
- b) Two columns of the rating matrix considering common non-zero entries**
- c) Two rows of the rating matrix considering all the entries and setting the missing values as zero
- d) Two rows of the rating matrix considering common non-zero entries

Correct Answer: b

Explanation: Refer to Week 3 lecture 4 slide 5-7

QUESTION 8:

The latent item features can be extracted from sparse rating matrix using _____?

- a) Principal component analysis
- b) Singular value decomposition
- c) U-V Decomposition**
- d) K-means algorithm

Correct Answer: c

Explanation: Refer to Week 3 lecture 4 slide 15

QUESTION 9:

In Item Based Collaborative Filtering, the rating predicted for an item is based on the ratings given to similar items. Consequently, recommender systems using this approach will tend to recommend to a user the items that are related to those usually appreciated by this user. The metric that best describes this feature is _____.

- a) Accuracy
- b) Justifiability
- c) Serendipity**
- d) Stability



Correct Answer: c

Explanation: Refer to Week 3 lecture 5 slide 8

QUESTION 10:

In Sparse Linear Models $L1$ regularization ensures _____.

- a) Most similarity weights are set to zero
- b) Over fitting is prevented
- c) The results are interpretable in terms of limited number of similar items
- d) All of the above**

Correct Answer: d

Explanation: Refer to Week 3 lecture 5 slide 13

*******END*******