

1. Applications and algorithms that are developed to help individuals decide easily, rapidly, and more accurately and are tailored to individuals' tastes such that customized recommendations are available for them are called
  - (a) reference algorithms (b) recommendation algorithms or recommender systems
2. Challenges Recommendation systems face include
  - (a)Cold-Start Problem (b)Data Sparsity (c) Attacks (d) Privacy (e) Explanation (f)all of these
3. Content-Based Methods include
  - (a) Collaborative Filtering (CF) (b) Content-Based Methods (c) Extending Individual Recommendation to Groups of Individuals (d)all of these
4. Evaluating Recommendations include
  - (a) Evaluating Accuracy of Predictions (b) Evaluating Relevancy of Recommendations (c) Evaluating Ranking of Recommendations (d) all of these
5. Individual Behavior includes
  - (a) User-User Behavior (b) User-Community Behavior (c) User-Entity Behavior (d)all of these
6. User Migration in Social Media includes
  - (a) Site Migration (b) Attention Migration (d)both of these
7. General features that can be considered for user migration include
  - (a) user activity on one site (b) user network size (c) user rank (d) all of these
8. Information Diffusion in Social Media involves the following elements
  - (a) sender(s) (b) receiver(s) (c)medium (d) all of these
9. General types of information diffusion include
  - (a) herd behavior (b)information cascades (c)diffusion of innovation (d) epidemics (e) all of these
10. Innovation Characteristics include
  - (a) highly observable (b) should have a relative advantage over current practices (c) should be compatible with the sociocultural paradigm to which it is being presented (d) should be observable under various trials (trialability) (e)should not be highly complex (f)all of these

**Fill up the blanks**

11. Any member of the crowd can be in either one of three states: 1. Susceptible 2. Infected 3. Recovered (or Removed)\_\_\_\_\_ (True/False)

12. Some Epidemics models are: SI Model, SIR Model, SIS Model, SIRS Model \_\_\_\_\_ (True/False)

13. 3 common social forces that induce assortative networks are influence, homophily, and confounding \_\_\_\_\_ (True/False)

14. When individuals get connected, one can observe distinguishable patterns in their connectivity networks. One such pattern is assortativity, also known as social similarity. Assortativity in networks with assortativity, similar nodes are connected to one another more often than dissimilar nodes.  
\_\_\_\_\_ (True/False)

15. Homophily is observed in already similar individuals. It is realized when similar individuals become friends due to their high similarity. \_\_\_\_\_ (True/False)

16. Confounding is the environment's effect on making individuals similar. For instance, individuals who live in Russia speak Russian fluently because of the environment and are therefore similar in language. The confounding force is an external factor that is independent of inter-individual interactions. \_\_\_\_\_ (True/False)

**Match the following: Match a,b,c,d with p,q,r,s appropriately**

17. (a) Influence can be measured based on (p) prediction/observation

(b) 3 measures are frequently used to quantify influence in Twitter (q) In-degree, Number of mentions

(c) Homophily is (r) the tendency of similar individuals to become friends

(d) linear threshold model (LTM), the linear influence model (LIM) (s) are correct abbreviations

**Descriptive Exam Paper for Subject: Social Media Mining M.Tech.(AI-ML), 2<sup>nd</sup> Mid Exam., August**

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1. Compare and contrast the Classical Recommendation Algorithms/Techniques: Content-based recommendation systems Vs. Collaborative Filtering (CF)
2. When a recommendation algorithm predicts ratings for items, one must evaluate how accurate its recommendations are. Delineate how any one of the following factors of recommendations are evaluated (1) accuracy of predictions, (2) relevancy of recommendations, or (3) rankings of recommendations.
3. Delineate the methods to take advantage of neighborhood information to compute the similarity between two nodes w.r.t. the link prediction in social media.
4. Delineate about User Migration in Social Media towards collective behavior analysis.
5. Delineate herd behavior.
6. (a) Depict the Figure w.r.t. how both influence and homophily affect social networks.  
(b) Depict the diagram for Information Diffusion Types.