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MASTER OF COMPUTER APPLICATIONS
(Specialization in Data Science)
EXAMINATION : JANUARY- 2025
SEMESTER - III

Sub: Principles of Recommender Systems (MCDS23-302)

Date :08/01/2025

Total Marks :60

Time: 10.00 am to 12.30 pm

Instruction:

1. All questions are compulsory unless and otherwise stated.
2. Bold figures to the right of every question are the maximum marks for that question.
3. Candidates are advised to attempt questions in order.
4. Answers written illegibly are likely to be marked zero.
5. Use of scientific calculators, Log tables, Mollier Charts is allowed.
6. Draw neat and labelled diagram wherever necessary.

Q.1. Answer the following in 2-3lines. (Any 5) (10)

1. What is a Recommendation System?
2. What is Content-Based Filtering?
3. What is Knowledge-Based Recommendation System?
4. What is Social Recommendation System?
5. What is Model-Based Recommendation System?
6. What is Deep Learning-Based Recommendation System?
7. What is Transfer Learning-Based Recommendation System?

Q. 2. Answer the following in short. (Any 4) (20)

1. Explain the concept of data preprocessing in recommendation systems. Describe the steps involved in data preprocessing, the techniques used in building effective recommendation systems.
2. Discuss the types of diversity, benefits of diversity, techniques for achieving diversity, and challenges of diversity in recommendation systems.
3. Explain the concept of scalability in recommendation systems. Discuss the types of scalability, challenges of scalability in recommendation systems ?
4. Explain the concept of personalization in recommendation systems. Discuss the types of personalization, benefits of personalization, techniques for achieving personalization, and challenges of personalization in recommendation systems.
5. Explain the concept of context-aware recommendation in recommendation systems. Discuss the key characteristics of context-aware recommendation.
6. Explain the concept of model evaluation in recommendation systems. Discuss the importance of model evaluation, the metrics used to evaluate the performance of recommendation algorithms, and the methods used to evaluate these models.

Q. 3. Answer the following in detail. (Any 3) (30)

1. Explain the concept of data mining, its use cases, and the differences between a data warehouse and a data lake. Provide examples and illustrations to support your answer.

2. Explain the concept of Context-Based Filtering in detail, highlighting its significance, types, advantages, and applications in information retrieval and recommendation systems.
 3. Explain the data mining techniques with suitable examples, highlighting their applications, advantages, and limitations.
 4. Explain how collaborative filtering works, and discuss the challenges and potential solutions for improving its accuracy.
 5. Explain the concept of personalization in recommendation systems. Discuss the types of personalization, benefits of personalization, techniques for achieving personalization, and challenges of personalization in recommendation systems.
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