

**KINGS COLLEGE OF ENGINEERING**  
**CONTINUOUS ASSESSMENT TEST-I(MAR 2024)**  
**CCS360 – RECOMMENDER SYSTEMS**

**Class / Sem : III B.E.CSE / 06**  
**Maximum : 100 Marks**

**Date / Session: .15.03.2024/FN**  
**Time : 9.30a.m. - 12.30 p.m.**

<b>Answer all Questions</b> <b>PART – A (2 x 10 = 20 Marks)</b>			
<b>Q.No</b>	<b>Question</b>	<b>BT Level</b>	<b>CO</b>
1.	Write short note on recommender systems	REMEMBER BT-L1	CO1
2.	What are the ways to formulate RS problems?	UNDERSTAND BT-L2	CO1
3.	Enumerate on the benefits of RS.	REMEMBER BT-L1	CO1
4.	List the applications of RS.	REMEMBER BT-L1	CO1
5.	Mention the issues to be considered in designing RS.	REMEMBER BT-L1	CO1
6.	Schematically represent content-based filtering RS..	REMEMBER BT-L1	CO1
7.	Differentiate between content based & collaborative techniques	UNDERSTAND BT-L2	CO1
8.	Consider a small corpus of three documents: Document 1: "The cat sat on the mat." Document 2: "The dog played in the yard." Document 3: "The sun is shining brightly." Find TF-IDF of the word "the" in document 1	UNDERSTAND BT-L2	CO1
9.	Compare memory-based and model-based collaborative filtering.	UNDERSTAND BT-L2	CO1
10.	Give a brief note on approaches to neighborhood based collaborative filtering.	UNDERSTAND BT-L2	CO1

**PART – B (5 x 13 = 65 Marks)**

11.(a)(i)	Explain about personalized and non-personalized recommender systems. (07)	UNDERSTAND BT-L2	CO1
(ii)	Elaborate on operational and technical goals of recommender systems. (06)		
OR			
11.(b)(i)	Discuss about data mining methods that are deployed in the design or recommender system. (07)	UNDERSTAND BT-L2	CO1
(ii)	Compare content based and collaborative filtering techniques. (06)		
12.(a)	(13)	APPLY BT-L3	CO1
OR			
12.(b)	(13)	APPLY BT-L3	CO1
13.(a)(i)	Convert each document into a bag-of-words vector where each dimension represents the frequency of a word. Document 1: "The quick brown fox jumps over the lazy	APPLY BT-L3	CO2

(ii)	dog." Document 2: "A fast brown fox leaps over a lazy canine. Calculate cosine similarity measure. <b>(08)</b> Describe about architecture of content based recommender system. <b>(05)</b>	UNDERSTAND BT-L2	
<b>OR</b>			
13.(b)(i)	Consider two sets of data representing the monthly temperatures (in Celsius) in two cities over a year: City A: January: 5, February: 6, March: 7, ..., December: 4 City B: January: 3, February: 4, March: 6, ..., December: 3 Compute Pearson correlation coefficient. <b>(08)</b>	APPLY BT-L3	CO2
(ii)	Describe about similarity based retrieval. <b>(05)</b>	UNDERSTAND BT-L2	
14.(a)(i)	With suitable illustration, represent user profile. <b>(07)</b>	UNDERSTAND	CO2
(ii)	Interpret approaches to learning user profile. <b>(06)</b>	BT-L2	
<b>OR</b>			
14. (b)(i)	Illustrate and explain Naïve Bayes and rule based technique for performing recommendations. <b>(07)</b>	UNDERSTAND BT-L2	CO2
(ii)	Illustrate and explain regression model. <b>(06)</b>		
15. (a)	Describe about the approaches to collaborative filtering <b>(13)</b>	UNDERSTAND BT-L2	CO2
<b>OR</b>			
15. (b)	Discuss about item-based and user-based CF <b>(13)</b>	UNDERSTAND BT-L2	CO2

**PART - C (1 x 15 = 15 Marks)**

16. (a)	Using collaborative approach, identify NN and give recommendations for the given data	APPLY BT-L3	CO2																														
	<table><tr><td></td><td>Item 1</td><td>Item 2</td><td>Item 3</td><td>Item 4</td></tr><tr><td>User 1</td><td>3</td><td>5</td><td>0</td><td>1</td></tr><tr><td>User 2</td><td>0</td><td>4</td><td>0</td><td>1</td></tr><tr><td>User 3</td><td>1</td><td>1</td><td>0</td><td>1</td></tr><tr><td>User 4</td><td>1</td><td>0</td><td>0</td><td>4</td></tr><tr><td>User 5</td><td>0</td><td>1</td><td>5</td><td>4</td></tr></table>		Item 1	Item 2	Item 3	Item 4	User 1	3	5	0	1	User 2	0	4	0	1	User 3	1	1	0	1	User 4	1	0	0	4	User 5	0	1	5	4		
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16. (b)	Using SVD technique perform dimensionality reduction for the given data	APPLY BT-L3	CO2																														
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PART	L1	L2	L3	L4	L5	L6	
A	1,3,4,5, 6	2,7,8,9, 10					
B		11.a,b 13.a,b.ii (5) 14.a,b 15,a,b	13.a,b.i. (8)				
C			16.a,b				
TOTAL	10	10					
Distribution	46%		54%				

Course In-charge

IQAC Member

HoD/CSE