Homework 07

14. Finally, is the impact of the three metrics on User based Collaborative Filtering consistent with the impact of the three metrics on Item based Collaborative Filtering? Plot your results.

No , the results for User based Collaborative Filtering are not consistent with the impact of the three metrics on Item based Collaborative Filtering.
For cosine and pearson both , the item based data for RMSE and MAE is coming higher than user based . But only for MSD , RMSE for user based is greater than RMSE for item based.

15. Examine how the number of neighbors impacts the performances of User based Collaborative Filtering or Item based Collaborative Filtering?

Identify the best K for User/Item based collaborative filtering in terms of RMSE. Is the the best K of User based collaborative filtering the same with the best K of Item based collaborative filtering?

I have plotted the results using K = 5, 10, 15, 20 , 25

The best k turns out to be 25 in terms of RMSE for item based, where RMSE for k = 15 and 20 are only slightly higher than k = 25. For User based collaborative filtering, RMSE for k = 20 and k = 25 are the best . They are almost equal.

RMSE (Item Based) Best k = 25
RMSE (User Based) Best k = 20 and 25

Yes, Best k is same for both User based collaborative filtering and Item based collaborative filtering.