

JK Lakshmipat University Jaipur
INSTITUTE OF ENGINEERING AND TECHNOLOGY

End Term Examination, December 2022
PhD(CSE), Semester I

Roll No.....

CS2201: LARGE SCALE GRAPH ANALYTICS

Time: 2 hours

Marks: 30

Instructions to students:

1. Do not write anything other than your roll number on question paper.
 2. Mobile phone is not allowed.
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1. Write HITS algorithm for ranking nodes in a directed network. *Marks*
Write the formulas to compute hub index and authority index. *3+2+4*
Demonstrate matrix method to derive Authority rank of a large network.

 2. What is Bow-Tie model for large scale network. Draw a *Marks*
diagram of Bow-Tie structure in WWW network. Describe all *2+4+3*
its components. What is the significance of Bow-Tie analysis in
a complex network.

 3. Draw a directed random graph with at least 5 vertices and at *Marks*
least 10 edges. Compute Page-Rank of the vertices. Compute *12*
at-least 3 iterations.
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