JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2023

M.Tech-I Semester (Data Science)

COURSE CODE(CREDITS): 22M11CI111(3) MAX. MARKS: 15

COURSE NAME: Advanced Data Structures

COURSE INSTRUCTORS: Mr. Maneet Singh MAX. TIME: 1 Hour

Note: *(a) All questions are compulsory.*

(b)Marks are indicated against each question in square brackets.

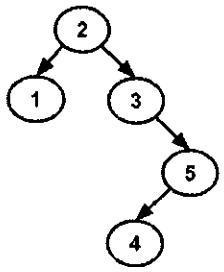
(c) The candidate is allowed to make suitable numeric assumptions wherever required for solving problems.

Q1. Insert the following keys into an empty splay tree:- [3] CO1

23, 45, 12, 44, 65, 22, 77, 55, 11, 88, 90, 2

Specify the rotations at each step (if any).

Q2. Construct an arborally satisfied point set for the search sequence <2,1,5,4,3> on the given BST: [3] CO1



Q3. State and derive the probability of false positivity in bloom filters. [3] CO5

Q4. Explain the purpose of using an Inverted Index. Construct a word-level inverted index for the following three documents:- [3] CO5

D1: "hello everyone"

D2: "this article is based on an inverted index"

D3: "which is hashmap-like data structure"

Q5. What is trie data structure? Construct trie and compressed trie for the following set of strings: [3] CO3

{man, make, most, manners, made}