Code No.: CS203ES | R20 | H.T.No. | | | 8 | R | | | | | |

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
I–B.TECH–II–Semester End Examinations (Supply) -January- 2025
DATA STRUCTURES
(Common for all)

[Time: 3 Hours] **[Max. Marks: 70]**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 20 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A **(20 Marks)**

1.	a)	What is a linear list?	[2M]
	b)	Define Stack.	[2M]
	c)	What is rehashing?	[2M]
	d)	Define Skip lists.	[2M]
	e)	What is a binary search tree?	[2M]
	f)	What are Red-Black trees?	[2M]
	g)	Define adjacency list and adjacency matrix of a graphs with example.	[2M]
	h)	What is the main advantage of merge sort over heapsort?	[2M]
	i)	Define standard tries.	[2M]
	j)	What is the importance of brute-force algorithm in pattern matching?	[2M]

PART-B **(50 Marks)**

2.	Discuss various operations that can be performed on a linear linked list (insertion, deletion, traversal).	[10M]
	OR	
3.	Explain the various operations of Queues and their applications.	[10M]
4.	Discuss the concept of open addressing in hash tables.	[10M]
	OR	
5.	Explain the structure and advantages of extendible hashing with examples.	[10M]
6.	Discuss the concept of binary search trees (BSTs) and their implementation.	[10M]
	OR	
7.	Discuss Splay trees and operations with examples.	[10M]
8.	What is the primary difference between depth-first and breadth-first graph traversal techniques?	[10M]
	OR	
9.	Explain about external sorting algorithms with example.	[10M]
10.	Describe the Boyer-Moore algorithm in detail.	[10M]
	OR	
11.	Describe suffix tries, a specialized trie data structure for pattern matching.	[10M]

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