PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2025
(Second Semester)

Common to Branches – **INFORMATION TECHNOLOGY & COMPUTER TECHNOLOGY**

DATA STRUCTURES

Time: Three Hours | Maximum: 75 Marks

SECTION-A (10 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	_____ is a sequential representation of similar data types. a) Queue b) Array c) Stack d) List	K1	CO1
	2	Matrices with a relatively high proportion of zero entries are called _____ matrices. a) sparse b) Null c) Zero d) worse	K2	CO1
2	3	which sorting algorithm is stable and adaptive/ a) Bubble b) Merge c) Selection Sort d) Insertion Sort	K1	CO2
	4	Quick sort running time depends on the selection of _____. a) size of array b) pivot element c) sequence of value d) depend on data	K2	CO2
3	5	The _____ for a linked list is a pointer variable that locates the beginning of the list. a) anchor b) base c) footer d) header	K1	CO3
	6	The process of allocation memory at the time of execution is called_____. a) Static memory allocation b) Dynamic memory allocation c) Sequence memory allocation d) Parallel memory allocation	K2	CO3
4	7	A stack also called a _____ system a) LIFO b) LILO c) LOLI d) LOFI	K1	CO4
	8	The queue which wraps around upon reaching the end of the array is called as_____. a) circular queue. b) linked queue. c) doubly linked list. d) representation of queue.	K2	CO4
5	9	A binary tree whose every node has either zero or two children is called_____. a) complete binary tree b) binary search tree c) extended binary tree d) binary tree	K1	CO5
	10	A graph is called_____ if there is no single node whose removal causes the graph to break into two or more pieces. a) pre-connected b) re-connected c) disconnected d) connected	K2	CO5

Cont...

SECTION - B (35 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Identify traversing linear arrays.	K3	CO1
		(OR)		
	11.b.	Construct the sparse matrices.		
2	12.a.	Develop the insertion sort with example.	K3	CO2
		(OR)		
	12.b.	Identify the hashing with example.		
3	13.a.	Illustrate the dynamic memory allocation.	K2	CO3
		(OR)		
	13.b.	Summarize insertion and deletion in linked list.		
4	14.a.	Elaborate the linked stack	K6	CO4
		(OR)		
	14.b.	Predict the Dequeue in detail.		
5	15.a.	Discuss about Binary Search Trees.	K6	CO5
		(OR)		
	15.b.	Adapt the AVL search trees.		

SECTION -C (30 Marks)

Answer ANY THREE questions

ALL questions carry EQUAL Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Construct the String operations with example.	K3	CO1
2	17	Identify the Quick sort with suitable example.	K3	CO2
3	18	Explain briefly about the doubly linked list .	K2	CO3
4	19	Elaborate about the circular queue.	K6	CO4
5	20	Predict the shortest path problem with example.	K6	CO5

Z-Z-Z END