Sanjay Ghodawat University, Kolhapur 2019-20

Established as State Private University under Govt. of Maharashtra. Act No XL, 2017 EXM/P/09/0

Year and Program: 2019-20 **School of Technology** **Department of Computer Science & Engineering**

Course Code: CST321 **Course Title: Data structures and Algorithms** **Semester – V**

Day and Date: Saturday,11/01/2020 **End Semester Examination (ESE)** **Time: 10.30am.-1.30pm.** **Max Marks: 100**

Instructions: 1) All questions are compulsory.
2)Figures to the right indicate full marks.

		Marks	Bloom's Level	CO
Q.1	**Attempt the Following**			
a)	Explain following terms with suitable example. 1. Time and Space complexity 2. Algorithm	07	L_2	CO1
	OR			
a)	With the suitable example, explain working of PUSH and POP operations of stack.	07	L_2	CO2
b)	What is ADT? Explain which operations can perform on different ADT's.	08	L_2	CO1
	OR			
b)	With the suitable example, explain working of enqueue and dequeue operations of queue.	08	L_2	CO2
Q.2	**Attempt the Following**			
a)	What is array and explain with suitable example array representation and array operations.	07	L_2	CO2
	OR			
a)	With the help of suitable example, explain working of bubble sort.	07	L2	CO2

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	b)	With the help of suitable example, explain working of Quick sort.	08	L_2	CO2
		OR			
	b)	With the help of suitable example, explain working of binary search.	08	L_2	CO2
Q.3		**Attempt any Two**			
	a)	Differentiate between linear search and binary search.	08	L_2	CO2
	b)	Choose appropriate search technique and solve search given key elements. 12,24,26,28,35 ,32 key:24	08	L_3	CO2
	c)	With the help of suitable example, explain working of Insertion sort.	08	L_2	CO2
Q.4		**Attempt any Two**			
	a)	Enlist the operations of List and explain insert operation and display operation of singly linked list.	09	L_2	CO
	b)	Write algorithm for enqueue and dequeue operations of circular queue, to be implemented using array.	09	L_2	CO2
	c)	Enlist applications of stack and explain with example.	09	L_2	CO2
Q.5		**Attempt any Two**			
	a)	Explain working of doubly linked list.	09	L2	CO2
	b)	What is queue and explain priority queue.	09	L_2	CO2
	c)	Convert following Infix expression into postfix expression- 1. (a/(b-c+d))*(e-a)*c 2. a/b-c+d*e-a*c	09	L_3	CO2
Q.6		**Attempt any Three**			
	a)	Explain basic tree terminologies with suitable examples.	06	L_2	CO3
	b)	Define binary tree and explain types of binary tree.	06	L_2	CO3
	c)	Explain graph representation techniques with example.	06	L_2	CO3
	d)	Describe DFS traversal technique with suitable example.	06	L_3	CO3

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